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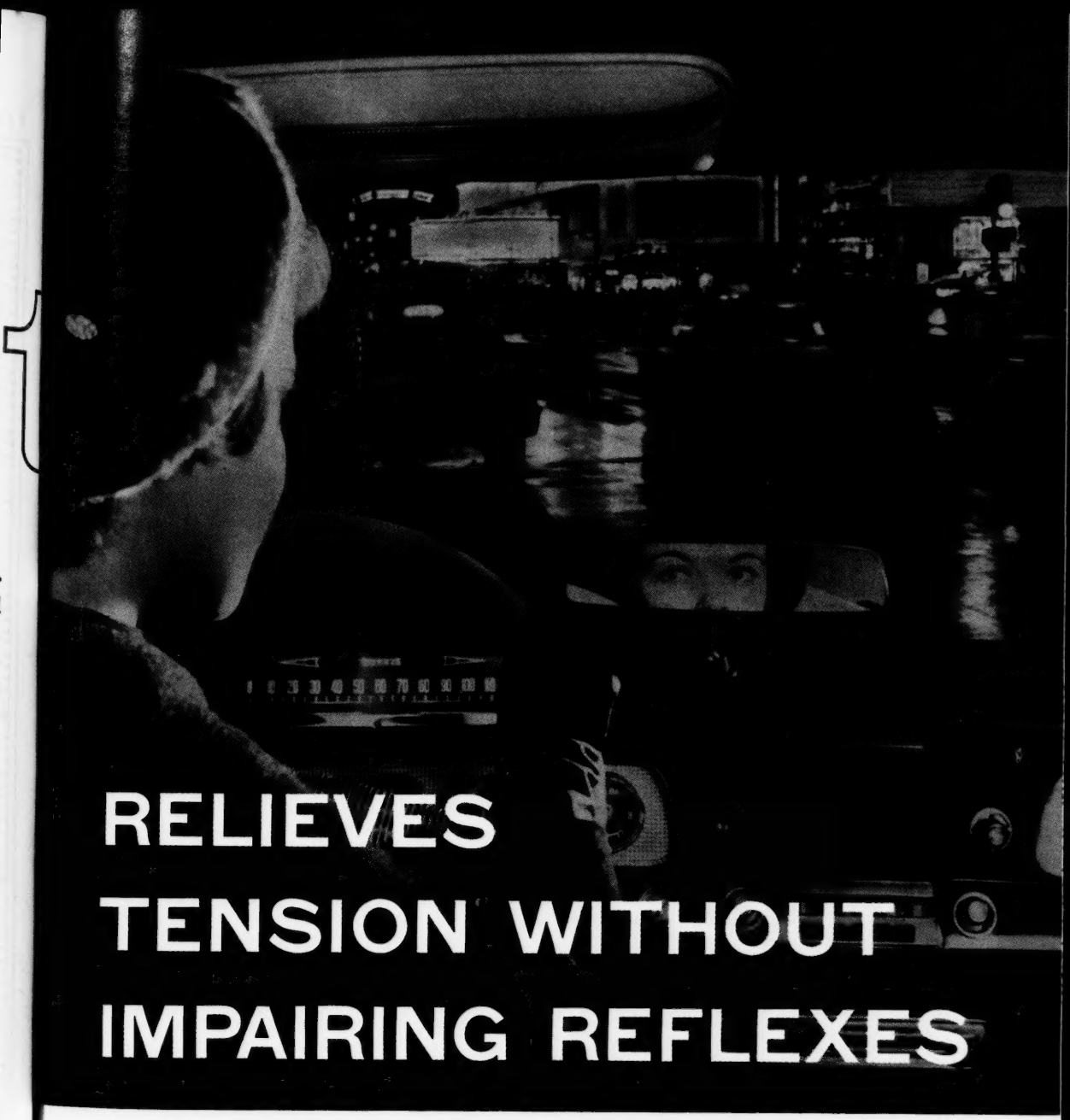
1. Rein, C. R., Fleischmajer, R., and Rosenthal, A. L.: J. A. M. A. *165*:1821, (Dec 7) 1957.
2. Shelley, W. B., and Pillsbury, D. M.: Personal Communication.
3. Sherwood, A., and Cooke, R. A.: Personal Communication.
4. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957.
5. Hartung, E. F.: Personal Communication.
6. Schwartz, E.: Personal Communication.
7. Sherwood, A., and Cooke, R. A.: J. Allergy 28:97, 1957.
8. Hellman, L., Zumoff, B., Kretshmer, N., and Kramer, B.: Paper presented at Nephrosis Conference, Bethesda, Md., Oct. 26, 1957.
9. Ibid.: Personal Communication.
10. Barach, A. L.: Personal Communication.
11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.



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GALEN'S PSYCHOSOMATIC MEDICINE

I WAS CALLED in to see a woman who was stated to be sleepless at night and to lie tossing about from one position into another. Finding she had no fever, I made a detailed inquiry into everything that had happened to her, especially considering such factors as we know to cause insomnia. But she either answered little or nothing at all, as if to show that it was useless to question her. Finally, she turned away, hiding herself completely by throwing the bed-clothes over her whole body, and laying her head on another small pillow, as if desiring to sleep.

After leaving I came to the conclusion that she was suffering from one of two things: either from a malancholy dependent on black bile, or else trouble about something she was unwilling to confess. I therefore deferred till the next day a closer investigation of this. Further, on first arriving, I was told by her attendant maid that she could not at present be seen; and on returning a second time, I was told the same again. So I went yet a third time, but the attendant asked me to go away, as she did not want her mistress disturbed. Having learned, however, that when I left, she had washed and taken food in her customary manner, I came back the next day, and in a private conversation with the maid on one subject and another, I found out exactly what was worrying the patient. And this I discovered by chance.

After I had diagnosed that there was no bodily trouble, and that the woman was suffering from some mental uneasiness, it happened that, at the very time I was examining her, this was confirmed. Somebody came from the theatre and said he had seen Pylades dancing. Then both her expression and the colour of her face changed. Seeing this, I applied my hand to her wrist, and noticed that her pulse had suddenly become extremely irregular (anomalous). This kind of pulse indicates that the mind is disturbed; thus it occurs also in people who are disputing over any subject. So on the next day I said to one of my followers, that, when I paid my visit to the woman, he was to come a little later and announce to me, "Morphus is dancing to-day." When he said this, I found that the pulse was unaffected. Similarly also on the next day, when I had an announcement made about the third member of the troupe, the pulse remained unchanged as before. On the fourth evening I kept very careful watch when it was announced that Pylades was dancing, and I noticed that the pulse was very much disturbed. Thus I found out that the woman was in love with Pylades, and by careful watch on the succeeding days my discovery was confirmed.

Similarly too I diagnosed the case of a slave who administered the household of another wealthy man, and who sickened in the same way. He was concerned about having to give an account of his expenses, in which he knew that there was a considerable sum wanting; the thought of this kept him awake, and he grew thin with anxiety. I first told his master that there was nothing physically wrong with the old man, and advised an investigation to be made as to whether he feared his master was about to ask an account of the sums he had entrusted to him, and for this reason was worried, knowing that a considerable amount would be found wanting. The master told me I had made a good suggestion, so in order to make the diagnosis certain, I advised him to do as follows:—he was to tell the slave to give him back all the money he had in hand, lest, in the event of his sudden death, it should be lost, owing to the administration passing into the hands of some other servant whom he did not know: for there would be no use asking for an account from such an one. And when the master said this to him, he felt sure he would not be questioned. So he ceased to worry, and by the third day had regained his natural physical condition.

Now what was it that escaped the notice of previous physicians when examining the aforesaid woman and the aforesaid slave? For such discoveries are made by common indications (epilogisms) if one has even the smallest acquaintance with medical science (theoria). I suppose it is because they have no clear conception (diagnosis) of how the body tends to be affected by mental conditions. Possibly also they do not know that the pulse is altered by quarrels and alarms which suddenly disturb the mind.

Galen on Prognosis

The RHODE ISLAND MEDICAL JOURNAL

VOL. XLI JULY, 1958 NO. 7

The Seventeenth Charles Value Chapin Oration

THE PREVENTION OF SOMATIC AND GENETIC RADIATION INJURY*

SHIELDS WARREN, M.D.

The Author. *Shields Warren, M.D. of Boston, Massachusetts. Pathologist, New England Deaconess Hospital; Professor of Pathology, Harvard Medical School; Member, Executive Committee, Division of Medical Sciences, National Research Council.*

I FEEL GREATLY HONORED by this opportunity for two reasons. First, I was fortunate enough to be a student at the Harvard Medical School when Doctor Chapin was teaching in the Department of Public Health there, and I had the privilege of coming personally into contact with him.

Secondly, it is a great opportunity to try to set the record straight as to what, in this very controversial field, is the truth about radiation injuries.

We are accustomed, in these early days of the Atomic Age, to think of radiation injury as a new problem for mankind. Actually, man has been living with low levels of environmental or background radiation since his first existence.

It is probable that a fraction, how small it is difficult to say — possibly a half, possibly two-thirds, possibly one-tenth — of the mutations that occur naturally in man, are referrable to the background radiation that he has received.

Here in Providence, for example, the background radiation has been in the neighborhood of 4.5r per generation, at least since the days of the Narragansett Indians. Radioactive fallout to date is adding about one fortieth of that amount. The amount added by industrial utilization of atomic energy through wastes, is at present insignificant, and appears likely to be adequately controlled.

Charles Value Chapin, in whose honor this oration is given, was concerned with the control of diseases that were actually killing thousands and even millions annually. Scarlet fever, diphtheria, typhoid fever have been virtually eliminated due to the application of research and the development of the techniques of public health to which Doctor Chapin was such a major contributor.

Born in the days over a century ago, when infant mortality was high and life expectancy short (the average life expectancy in the year of his birth, 1856, was about thirty-nine years) he lived until 1941, to see much of the fruition of man's struggles against communicable diseases; a struggle in which he had played a devoted and effective part.

Doctor Chapin would have been pleased, had he lived, to see the effective way in which the principles of public health have been applied to the Atomic Energy program which has developed since his death.

Until 1941, there was about a pound of radium in use in this country, used both medically and industrially. Over 10 per cent of the small number of people working with it, had died from its effects.

In our own Atomic Energy program, representing literally millions of man years of potential exposure to the equivalent of not pounds but hundreds of tons of radium, there have been only two deaths, both of which, unfortunately, were avoidable had the rules been followed.

This sharp contrast illustrates that public health principles are effective, when applied.

The question properly arises as to why deaths and injury from radiation still occur. It is largely a matter of ignorance. When Professor Becquerel carried a small amount of radium in his vest pocket, and developed a burn of the underlying abdominal wall as a result of it; when the luminous dial painters in New Jersey ingested minute amounts of radium and subsequently died of aplastic anemia or bone sarcoma, the risk was not understood. As always, some had to die or be injured to call attention to the hazards that existed.

continued on next page

*Delivered at the 147th Annual Meeting of the Rhode Island Medical Society, at the Rhode Island Medical Society Library, at Providence, Rhode Island, May 13, 1958.

The preparation of this article was aided by support from Contract AT(30-1)-901 between the U. S. Atomic Energy Commission and the New England Deaconess Hospital.

That X rays and radium could produce injury became apparent soon after they were discovered, but for many years the degree of danger and the methods of control and protection were not appreciated nor developed.

The older of you may remember the stories of the early practitioners of radiology who had checked the warm-up of their tubes by placing their own hands in the beam in order to see whether or not the bones were visualized and the apparatus functioning.

FIGURE I

Multiple keratoses and epidermoid cancer due to prolonged occupational exposure to the roentgen ray.

In Figure one you see the hand of one of these early pioneers, and you will note that we have a series of foci of radiation dermatitis and ulcers, and two epidermoid carcinomas which have developed.

In these days, this is fortunately virtually unknown in this country, although still seen in some parts of the world. However, we have perhaps been too complacent about our ability to understand exposure to radiation.

There are three effects that are clearly established as occupational hazards of radiologists. The first is this radiation dermatitis that I have shown to you, followed often by skin cancer. This fortunately is now rare.

The second is the effect of repeated low level exposures such as the radiologist might receive occupationally, and this is manifest either as anemia, disturbances of the white count, or in some instances leukemia.

The studies of March and others have shown that leukemia is about ten times as frequent among radiologists as among the general population.

Figure two is an example of a radiologist with the cutaneous lesions of leukemia, with some infection which complicated the picture. Note the enlarged lymph nodes. This happens to be lymphatic leukemia, with large axillary nodes.

The third effect is one of over-all life shortening, with no one specific cause of death, but rather an apparent general acceleration of the aging process. This is illustrated in Figure three which contrasts the age of radiologists at death with a comparable population, namely, United States males over twenty-five years of age.

FIGURE III

Years	Average Age at Death Radiologists	Mean Age at Death U. S. Male Pop. over 25
1930-34	56.0	61.4
1935-39	58.5	62.4
1940-44	58.0	63.8
1945-49	61.0	64.8
1950-54	62.75	65.9
1955	63.6	66.7

Over the last twenty-seven years, radiologists have tended to die, in the aggregate, about five years earlier than the control population.

Now this is not due to skin cancer alone, although that contributes somewhat. It is not due to leukemia alone, but to a combination of factors.

Coronary disease comes earlier in the radiologist than in the non-radiologist. In such infectious processes as tuberculosis, chronic pyelo-nephritis, the deaths are earlier among the radiologists than the non-radiologists.

This then, appears to be a diffuse aging of the tissues, due to long continued exposure. This is paralled in the experimental animal, in which it is possible to make some very rough approximations between the life shortening and the dose received. This is impossible in the human because many of the earlier radiologists did not know how much radiation they had received, and with the older types of apparatus, even were they available, it is difficult to make an exact approximation.

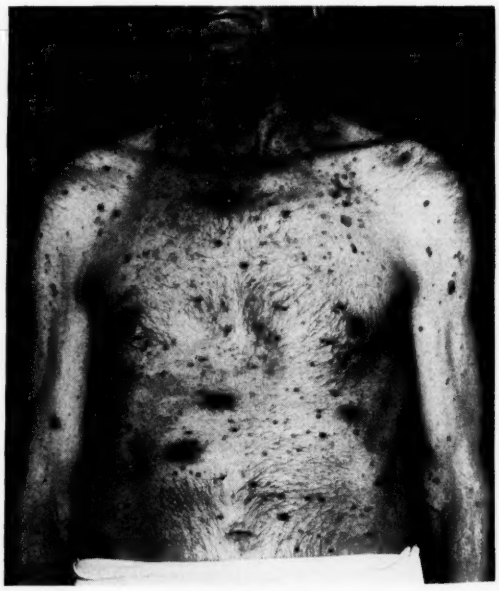

FIGURE II

Doctor Carl Braestrup, of Columbia University, has gone into this very carefully, and feels that some of the older radiologists may have received as much as 4,000r during their lifetime of work. It is quite clear that many of the radiologists who make up this group, have received as much as 1,000r in small, divided doses of radiation.

Remember, that those of you who have lived in Providence all your lives, have received in every thirty-year period, 4.5r from the background radiation only.

Now if one contrasts the average age at death of different specialists who use radiation to differing degrees, there is an interesting picture also. Figure three gives the average age at death for the various groups over the period from 1930 to 1956. The norm is made up of unexposed physicians; that is, they may have had some contact with X ray, but there is no record of their using it in their practice.

The cardiologists, the gastro-enterologists, the orthopedic surgeons, the dermatologists work with X ray somewhat, but not as a specialty.

In the 1920's, some thirty years after radiation was in general use, interest in protection from radiation grew, and by 1931 there had been established an international unit of radiation measurement — Roentgen, or r as it is commonly abbreviated, and also a standard of dosage for occupational purposes; 60r per year was set down as a permissible occupational dose. This contrasts with the 15r in any one year, or average of 5r per year, permitted at the present time.

The successive reductions in levels of radiation exposure have been based in part on a better understanding of the potential harmfulness of chronic radiation, but also hinge, in part, on genetic considerations. Our present low levels of occupational exposure are based more or less on considerations of populations, rather than individuals, and also on the assumption, for which geneticists have every evidence, that there is no repair of damage done to the germ plasm as contrasted with the very appreciable amount of repair possible for the somatic cells.

This lowering of permissible dose has been further influenced by the fact that many more people are now engaged in fields where occupational exposure to radiation is likely, so that a far larger proportion of the population is potentially exposed today than in the past.

We still do not know exactly how this intangible and imperceptible force, ionizing radiation, affects the cells and the organism as a whole. Sources of radiation, be they conventional X-ray machines, atom smashers, linear accelerators, radium, radioisotopes, atomic piles, produce radiations that deliver quanta of energy to the cells of the body. If these quanta are absorbed by a vital portion of the cell such as the nuclear material, injury or destruction occurs in that portion of the cell.

Interestingly enough, since the effects of radiation injury are far greater than the transfer of energy alone would indicate, it is assumed that molecules particularly vital to the cell have to be affected to bring about the change observed. It is much like having a perfectly good carburetor mixture fed to the cylinders but the spark is needed to make the motor go.

Among such hypothetical materials, although there is fairly good evidence to back up their nature, are the various intracellular enzymes and the nucleic acid components of the nucleus.

The somatic effects of radiation vary greatly, as Doctor Murray has indicated to you, with the total dose of radiation absorbed and the rate at which that radiation is delivered. 400r delivered to the total body within a few hours, kills about half of the human population exposed.

The acute radiation syndrome has been described many times, and has been touched upon by Doctor Murray. I will not repeat it to you. But I will remind you that the pathologic changes, and the symptoms of this syndrome, are determined by the relative sensitivity of the various tissues, the most sensitive being the cells of the hemapoietic tissue and germinal epithelium, the more resistant being those cells that do not ordinarily proliferate during adult life.

U. S. Navy photo

FIGURE IV

A typical picture of a Nagasaki atomic fatality is shown in Figure four. Note the abscesses of the skin without reaction due to absence of white blood cells. Note also the cellulitis of the neck. Overwhelming bacterial infection brought about by the destruction of immunity was the cause of death.

Figure five represents another type of picture, the bone marrow of one of the radium watch-dial workers in New Jersey, so well studied by Doctor Harrison Martland, whose account you may recall. Observe that there are areas of fibrosis of the mar-

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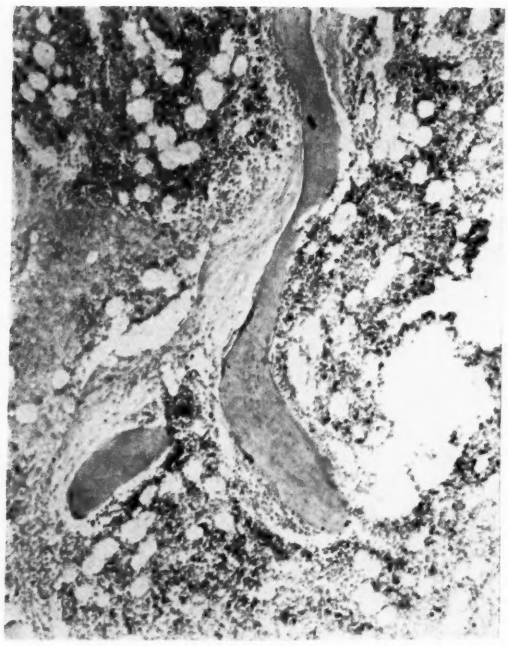

FIGURE V
Showing bone marrow of radium dial worker

row, scarring, destruction of the osteo-clastic cells, so there is no resorption of the bony trabeculae, and there are masses of proliferating cells in this case of the erythroid series, with a rather poor white cell formation. So that there was not only anemia, but a drop in white count.

The actual cause of death, however, was osteogenic sarcoma, which came about by the imbalanced growth of the bone with the destruction of the osteo-blastic cells as a possible factor.

It is fortunate that our body cells have a great capacity for repair, and therefore, sub-lethal doses of radiation may be recovered from to a very striking degree. However, a portion of the injury done is never completely repaired, so that the person or experimental animal who has received one dose of ionizing radiation, will show a greater degree of damage with another dose, than would a person who had never been treated or exposed, in response to a similar amount.

In contrast to the somatic cells, the germinal epithelium does not recover. Once a mutation has been induced, it is permanent, until eliminated from the gene pool of the race.

Mutations vary greatly. Geneticists have come to assume that most of them are undesirable. Only when one can weed out the individuals with unfavorable mutations, as for example, in the breeding of new varieties of plants or in animal husbandry, is it practical to consider mutations as favorable. Otherwise they are undesirable.

The expression of these mutations may be serious or trivial. Many of you recall the fad that women had in their hairdo, where one lock would be dyed white. Well, the natural occurrence of this white lock is evidence of one particular type of mutation.

Some of you may have a friend with one green eye and one brown eye. This again is a mutation. The number of genes in man is not known, but it is in the hundreds of thousands. So there are a great number of possible mutations.

The radiation of the population that survived the atomic bombs at Nagasaki or Hiroshima, undoubtedly produced some genetic change. But in the first generation, of whom we have studied about 15,000, it is at least so small that there is no significant difference, as far as genetic abnormalities are concerned, from the control population.

This doesn't mean that mutations were not produced, but merely that the population studied, although in the thousands, was still too few to show demonstrable changes. The study is being continued to the second generation, when we hope to obtain additional information.

There has been a great tendency in some of the discussions in the press, to mistake the tangible effect of mutations for truly serious effects. Thus the inability to taste certain inorganic chemicals, on the one hand, and the development of a retinal blastoma on the other, may be each due to a mutation. The first is insignificant; the second lethal.

It is assumed that the number of mutations now present in the gene pool of the race might be doubled without significant harm resulting to the race. If one assumes that the background level of radiation with which mankind has established equilibrium is in the order of 4.5r, your background radiation here in Providence, then it may be said that we can receive an amount of radiation equal to this without placing too heavy a social or economic burden on the race.

One of the striking things about radiation is that it is imperceptible. How does one go about measuring it? The methods vary somewhat, but are reasonably satisfactory. Darkening of photographic film, use of the Geiger or scintillation counters are practical techniques.

Fortunately, radiation can be detected at fantastically low levels, so that a wide spread exists between potentially harmful levels of radiation and the lowest amounts detectable.

It is this very ability to measure extraordinarily low amounts of radiation that has tended to confuse the picture as to the protection of individuals from radiation. There is naturally a tendency to confuse any detectable level of radiation with the biologically significant level.

There are here among you tonight, quite a few who use ionizing radiation diagnostically and therapeutically. How do you know whether or not you, or your nurses, or technicians, are safe? Is radiation escaping from your apparatus? Be sure it meets the national requirements of the Committee. Wear film badges to determine the amount of individual exposure you have received.

What about your patients? It would be tragic to deny them the great value of diagnostic X rays, or the therapeutic use of radiation. However, there are certain general principles that can be applied which will minimize exposure. For example, it is essential in the control of tuberculosis, that you have effective, careful early detection of the disease. The use of X rays is one of the simplest and best means of this detection. On the other hand, it is essential to protect the gonads of the individual radiated, and to keep the field of radiation as small as is compatible with the diagnostic needs.

Secondly, one can gauge the probability of finding disease in the groups, and decide whether or not X ray is the best way of case finding. For example, in high school children, satisfactory results for the diagnosis of tuberculosis can be obtained by other diagnostic screening techniques such as tuberculin skin testing, with chest radiographs only of those who react positively.

It is well also to keep in mind that the photofluorographic apparatus, while cheap to operate, is costly in terms of the dose of radiation it gives. For example, the exposure incident to the average 14 x 17 chest film, is less than five-one hundredths of a Roentgen. The exposure used to obtain the photofluorographic picture is some twenty times as much, and may exceed this.

The study group of the National Academy of Sciences found that medical X rays, after the natural background, made the largest contribution to the total genetic dose.

In addition to the strictly genetic considerations, one must also note the fact that the developing embryo, particularly in the first trimester, is much more sensitive to radiation than is the adult. Retardation and anomalies of growth can be produced in the developing embryo, particularly in the bone and central nervous system.

There is some equivocal evidence that even pelvimetry in the pregnant woman, may involve danger to the child. The figures of Alice Stewart of the United Kingdom indicate that there is an appreciable amount of leukemia among the children who had been radiated *in utero*. This point, however, has not been clearly established.

There has been a tremendous amount of emphasis placed on radioactive fallout from weapons testing. The amount and nature of radioactive fallout is probably better documented than almost any other subject. Over half a million determinations have been made and studied in various parts of the earth. They indicate radioactive fallout thus far is only a small fraction of the natural background.

There are two kinds of fallout. One, the kind localized in the vicinity of nuclear explosions that have occurred in contact with the earth, and are a mixture of the earth, with induced radioactive and fission products. It was this type of radiation that was received by the Japanese, the crew of the Japanese fishing vessel, and by the Marshall Islanders.

Then there is a second type of fallout, the more distant type, the commonly spoken of type, which comes from most of the nuclear explosions and consists of very finely divided fission products which may receive world-wide distribution, although the intensity at any one spot is extremely low.

Every one of us, at the present time, probably has a few atoms of radioactive strontium that we have breathed in from the fallout from the bomb tests. These are so small in amount as to have no biological significance.

The attempt to develop a so-called "clean bomb," is an attempt to minimize this type of fallout. I think we can say quite clearly, on the basis of the evidence at hand, that radioactive fallout at the present time is not likely to cause harm from continued bomb testing, because it is less significant than the changes in background radiation that are produced by changes in altitude alone. Thus, the move from Providence to Denver involves the receipt of an increased amount of background radiation compared to which radioactive fallout is of very minor significance.

Providence Journal Company Photo

Doctor Shields Warren, of Boston, receives the Doctor Charles Value Chapin medal of the city of Providence from City Councilman Jacob J. Alprin as Rhode Island Medical Society president, Doctor George W. Waterman watches the presentation.

THE ATOM — ITS ULTIMATE PROMISE

HONORABLE JOHN O. PASTORE

The Author. *Honorable John O. Pastore of Providence, Rhode Island. United States Senator from Rhode Island; Former Governor of the State of Rhode Island; Member of the United States Senate Joint Committee on Atomic Energy, the United States Senate Appropriations Committee, and the Special Subcommittee on Disarmament of the Senate Foreign Relations Committee.*

I COME WITH special satisfaction and pleasure to this affair of the Rhode Island Medical Society. For only last night your Society honored a man who is no stranger to the Congress — particularly to the members of the Joint Committee on Atomic Energy. We have long profited from the knowledge and public service of Doctor Shields Warren. We rejoice that — last night — you bestowed upon him the Charles Value Chapin Award.

Doctor Warren was the first director of the division of biology and medicine eleven years ago — when the Medical Board of Review was first set up by the Atomic Energy Commission. Today, as a member of the United Nations Scientific Committee on the effects of radiation, his skill is at the command of the whole world.

It is a distinct privilege for me to talk to you on any phase of the atom in the same week in which you have honored this great American.

He is a symbol of the dedication of the medical profession to the cause of humanity — on the world scale — just as each physician and surgeon within the realm of his practice contributes so much to the cause of humanity. Each doctor contributes to the happiness of the individual, to the peace of mind of the community, to that progress which frees the human mind from its deepest fears. He seeks to save the human body from its countless pains and perils. The doctor makes his corner of the earth a place of greater contentment for the present, and greater hope for the future.

In this day, when we are inclined to be carried away with the claims of tremendous discoveries, when we dally with the ideas of voyages into space, when the photon rocket is accepted as a serious idea, when we are told that man will be able to travel at the rate of 186 thousand miles a second, it may be wise for us to slow down just a trifle.

It may calm us to evaluate some of the equally important discoveries that have come to us from the minds and hearts of doctors.

From their laboratories and their researches have come a long procession of values, from Pasteur to Salk. Every physician and his patient treasures some memory of a miracle — of the impossible — which lifted some life to the heights of healing. It is a personal experience before which all other problems of the world fade in importance.

Only a few days ago in Philadelphia Doctor Salk modestly listed the international contributions leading to the development of the vaccine that bears his name. The occasion was the meeting, the Fifth Congress of the International Society of Internal Medicine. A thousand of the leading specialists in that field from all over the world were there. Such a meeting proves the universality of medicine. It proves the universality of human suffering, and the universal search of people for happiness.

It proves the universal need for a common path through the jungles of basic hunger, disease, and despair. All mankind aims toward a civilized plateau of plenty and peace.

The whole world has too much in common to give, too much in common to receive, to toss it away, if a balance of terror is accepted as man's way of life.

Listen to Doctor Salk as he gives the sources of the polio miracle we enjoy today. The diverse clinical aspects were first described in Germany, Sweden and the United States. The causative virus was first isolated in Austria. An American, Doctor Joseph Enders of Boston, was the first to grow the virus in a tissue culture. But the formulary came from Canada, and the essential antibiotics for the tissue culture were first discovered in England. What could be more universal than that! — unless it be atomic energy.

Discovery of Radioactivity

Sixty years ago in France came the discovery of radioactivity. It was the first evidence that the atom had a source of energy far greater than man

*An address delivered at the annual dinner of the Rhode Island Medical Society, at its 147th Annual Meeting, at the Sheraton-Biltmore Hotel, Providence, Rhode Island, on May 14, 1958.

had ever dreamed. The famed work of the Curies followed. Forty-seven years ago Rutherford of England was building his renown as the greatest of the nuclear scientists. I count Enrico Fermi of Italy as his close follower. The Germans, Japanese, Russians, English, French, Italian, Hungarian — scientists in every laboratory in the world contributed a part to the pursuit of the atom. All worked for the useful release of the tremendous energy hidden in the heart of the atom — its nucleus.

Why should scientists be so interested? The economic progress of the world, whether we like it or not, is based on power, industrial power. The prosperity of a nation is in direct ratio to its possession of the sources of power. This is the energy hidden in the fossil fuels of Mother Earth — the wood, the coal, the oil.

But there are vast areas of the earth without such resources, areas depressed, hungry, unhealthy, hopeless and helpless unless the rest of the world rises to their needs.

Even in our own country these resources will not last forever. The years of our petroleum deposits are numbered. Supplies of coal, in countries like Great Britain, are fast reaching the vanishing point. If science can release the energy of the atom, science will place for the use of mankind a supply of power equal to the energy of the sun. This indeed is fantastic in its implications, because that nuclear energy would be universal. It would not be bound by any wealth nor any poverty of a particular land. The goal of the scientist is the good of mankind, an era of plenty, an era of peace.

Why the change? In the summer of 1939, scientists in America were alarmed by their belief that German scientists were concentrating on a nuclear chain reaction.

In March of 1939 our scientists alerted our defense authorities that uranium might be used as an explosive that would have a million times the energy of any known explosive. Such peace-loving men as Einstein joined in warning this government. President Roosevelt took the responsibility of giving the order and providing the funds. Most of all, he provided the enthusiasm and perseverance which, through the genius of Enrico Fermi, finally gave us the perfected atomic bomb. If I mention Enrico Fermi alone, I do not mean to neglect the fifteen thousand men and women who took part in the war research that led the way, or the more than half a million workmen engaged in making the first atomic weapons. All had a share in the greatest secret ever kept — until that day at Hiroshima.

Thus we see that atomic energy, though cradled in peace, was launched in war. War was far removed from the purposes of the scientists, far removed from their prayers.

With the conclusion of war, hastened by the threat of the atomic bomb, it became the purpose of the United States to restrict the bomb. We played it down. It was our desire to keep its secret as long as we could, so that peril to the world might not be multiplied.

The Threat of Communism

But now for forty years a shadow has been deepening over the peace of the world. It is Soviet Communism. A handful of men, comparatively speaking, have been able to impose their will on a great nation. They have been able to dominate other nations. Now, with their satellites, they have the men and the material resources against which no free nation can stand alone.

Communism is not only a political and economic system, it is a complete plan of thought. It is a complete way of life, a complete appeal to man's mind, to his physical desires, to his emotions. Communism offers itself as a substitute for man's belief in God, a substitute for his love of country we know as patriotism.

Communism demands the surrender of all the moral, social and economic standards that belong to the individual in a country that is free.

It is a complete denial of all things that we define and defend as Americanism. It is an evil plague on the peace of the earth, as we see it. So it becomes our thought, as would be the thought of the good physician, to meet this plague with all the preventatives at our command. Yet we should have in mind the cure. We would seek the attainment of a practical peace in which civilization can march on to its destiny in a world created by God for man's use.

The preventatives are many.

The free world may well be grateful for the years in which we alone possessed the secret of the atom. Only atomic fear prevented the massive Soviet armies from over-running Europe. For Europe was on its knees — victor and vanquished alike — from the most devastating war in history.

Only the fear of atomic retaliation keeps Khrushchev in his place today.

True, the Russians have a destructive force aimed at their principal target with a violence that beggars description. They announced a year ago that they had successfully fired a 5,000-mile intercontinental ballistic missile. That would take only thirty minutes from thrust to its target. Now more than 500 Soviet submarines are said to be prowling the oceans and every day the anti-submarine patrol of Quonset scours the seas. We remember our experience with German submarines; and we have a decent respect for submarines that could carry nuclear warheads.

We send our strategic air force with its great nuclear armed bombers, on their patrols every day,

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wherever there might be a Soviet threat. We fly two thousand missions each week. We go so far, and no farther. But we shall not be caught on the ground again; we will not be caught napping.

We know that as long as we excel them, there is a deterrent.

When they equal us, there is a dead-center, a balance of peril. If they excel us there is danger, a danger that they may reach the point of no return.

Remedies Sought

Against all this, like the good physician, we apply all the remedies that look to a cure. We have the United Nations, we have NATO and SEATO, we have the Marshall Plan, the four-point program, foreign aid and trade, the International Atomic Energy Agency. We are comrades in arms to maintain a balance of power in Europe. And to all nations, we are generous to the extreme. We help them toward their aspirations of economic strength, bodily health and national peace.

We have offered atoms for peace through the United Nations. You recall the Eisenhower speech of 1953. You remember Geneva in 1955 and Vienna in 1957. Always and everywhere, we have given the world ample proof that we have no intent to wage war; for us there is no profit in conquest. At New York and at London, the world had our sincere declarations for disarmament.

We shall not be afraid to meet and discuss our differences and our agreements with any nation. We shall not expect complete success from one such conference; nor shall we feel that the partial failure of any such conference is an invitation to all-out war.

We must be prudent, and we must be patient. We must be vigilant as to our defenses. But we must be equally diligent to promote the research and the sharing of atoms for peace; for one day they may provide the break-through; they may disperse the smoke screen of terror the Soviet would cast over the world.

It is a world in many places struggling to adjust itself to new found freedoms, to the nationalism in which we have encouraged them, to independence in a world where they will find that interdependence is the need of the strong as well as of the weak.

We are only on the threshold of the promise of the atom for peace. There is the enthusiasm of the doctor as atomic radiation curbs those scourges of humanity, heart disease, arthritis, cancer.

World of Medicine Stimulated

The whole world of medicine has been stimulated anew as the atomic process, for the first time, allows man to trace the life process while it is in progress. It tells us how the body grows, how it fights disease, and carries on its functions.

In agricultural research atomic energy unlocks a vast storehouse of knowledge about soils, plants and animals. It penetrates to the mystery of the sun in the growth process. This is a knowledge America can bring to the undernourished and underprivileged the world over. There is no need for hunger anywhere.

American industry uses atomic radiation in producing everything from laundry detergents to steel girders and saves a billion dollars a year over the old methods. The *Nautilus* and its sister submarines herald the age of nuclear propulsion. Their fabulous performance invites a discussion of nuclear propulsion in the space age. In the field of power, atomic energy runs away with the imagination, and then proves it in production.

When we realize that one pound of uranium, the favored atom, when completely fissioned, is equal in energy to three million pounds of coal, we begin to understand the appeal of the atom.

I could lead you through more than seven hundred pages of testimony given us by Doctor Warren and by similar leaders in their respective fields. All is proof of the promise of the atom for peace.

But what is most important, the whole scientific world knows that promise. The whole world hungers for its *performance*. Without force of arms it can bring the opportunity for prosperity; each nation can be happy within its own boundaries; each home can be secure upon its own acre. This world can be at peace.

There is no *aloneness* about the desire for health and happiness. I have seen the sharing of science at Geneva and at Vienna. There is no *aloneness* about science.

I am sure that no iron curtain divides humanity in its prayer for peace. I am equally sure that a disturbed world looks to America today for the confidence it sorely needs.

This is undoubtedly a time for us to be very serious, very sincere, very responsible.

Almost five hundred years ago humankind was granted the discovery of this continent, this New World when the Old World needed new horizons.

Almost two centuries ago, humankind was granted this new nation, this new experiment in democracy where life, liberty and the pursuit of happiness would be the badge of human dignity under God.

For reasons best known to Himself, God chose this nation to be the instrument of His revelation of atomic energy.

I believe that this nation has kept faith with that gift, as it has kept faith with the world as its great source of hope and of help.

I do not believe that God intended this great gift to be used to destroy man made in His image. I am

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MEGIMIDE AND DAPTAZOLE IN TREATMENT OF BARBITURATE POISONING

Review of the Literature and Four Case Reports

JOHANNES VIRKS, M.D. AND BARUH B. MOTOLA, M.D.

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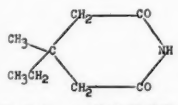
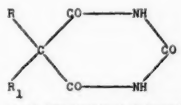
THESE TWO NEW DRUGS were introduced between 1952 and 1954 by Shaw and co-workers[1] from Australia.

Megimide (beta, beta—methylethylglutarimide), also known under the names of Bemegride and Mikedimide, has been considered to be a direct antagonist to the barbiturates. The antagonistic effect has been observed and investigated in animals and in man.

The chemical formulas of Megimide and barbiturates are:



beta, beta - methylethylglutarimide



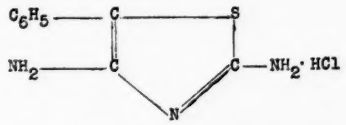
5, 5 disubstituted barbiturate

Due to the chemical resemblance of Megimide to barbiturates the antagonism has been explained on the basis of competitive inhibition: Megimide is expected to replace the barbiturates at the effector cell by virtue of higher affinity for it.[2, 3] The electroencephalographic studies conducted by Cass[4] in rabbits demonstrated that Megimide reverses the pattern of deep depression due to barbiturates. No reversal was obtained when non-barbiturates were used. However, there was one exception: the sleep induced in mice by a non-barbiturate Doriden (alpha, alpha—ethylphenylglutarimide) was antagonized rapidly too. The similarity of the chemical formulas of Megimide and Doriden suggests also that competitive inhibition may be the mechanism of the antagonism. The electro-encephalographic studies by Cass showed also that Megimide is capable of reversing the barbiturate pattern more than the commonly used analeptics.

Chemically, Megimide is the imide of methyl-ethyl-glutaric acid. Not much is known about its metabolism. The preliminary studies have shown that the major part of the Megimide is excreted in the urine unchanged.

It is of interest that Megimide has been used experimentally in clinical conditions other than barbiturate poisoning. In France, encouraging and sometimes spectacular results were obtained with Megimide in the treatment of alcoholic polyneuritis and sciatica.[5] This effect was attributed to Megimide's stimulant action on the peripheral nerves.

Daptazole (2, 4—diamino—5—phenylthiazole hydrochloride), also known under the name Amiphenazole, is a partial morphine antagonist. The chemical formula is:



2, 4 - diamino - 5 - phenylthiazole hydrochloride

Daptazole, unlike nalorphine, does not inhibit the analgesic effects of morphine. Daptazole counteracts only the morphine induced respiratory depression, vomiting, and narcosis. Daptazole has been used in other conditions than barbiturate poisoning; in prolonged labor together with morphine, in neonatal apnea caused by morphine, and together with morphine for intractable pain in terminal cancer patients.[6, 7, 8, 9] As reported by Shaw and co-workers[1, 2] Daptazole has only a weak antagonistic effect to barbiturates. However, it is considered to be a good synergist to Megimide as well as an excellent respiratory stimulant. It is expected to reduce the risk of toxic manifestations, which sometimes occur when Megimide alone is given rapidly and in high dosage.

The first series of cases of barbiturate poisoning treated with Megimide and Daptazole were reported in 1955 by Schulman, Shaw and co-workers.[2] The report includes 41 cases of which 9 were severe. The two drugs were injected into the rubber tubing of a 5% glucose intravenous infusion: Daptazole 1 cc, 15 mg, from one syringe, followed immediately by Megimide 10 cc, 50 mg, from a second syringe. This dosage was repeated every three to five minutes until the comatose patient was brought into "safe state," from which spontaneous recovery to

continued on next page

full consciousness usually occurred within eight hours. The "safe state" was denoted by the improvement of respiration and circulation and return of muscle tone and reflexes. No serious side-effects from the treatment were noted, only slight increase in blood pressure and sweating were observed. Of the 41 patients treated, 40 recovered, one died. The death was not due to the use of Megimide and Daptazole.

From the available literature, reports of one hundred more cases of barbiturate poisoning treated with Megimide alone or in combination with Daptazole were found.[10-17]

In general, the drugs were administered by the method described before. However, in some series of cases the drugs were administered by continuous intravenous drip. The repeated single-dose method allows a better control and precision of the dosage, and therefore appears to be preferable. The total dosage has varied between as little as 100 mg. of Megimide and 30 mg. of Daptazole to as much as 5500 mg. of Megimide and 1200 mg. of Daptazole. The range of average total dosages: Megimide 500-2000 mg., Daptazole 150-600 mg.

Some patients who were brought to "safe states" regressed into deep comas. In most instances when this occurred, the poisoning had been caused by long-acting barbiturates. The regression was treated by re-administration of Megimide and Daptazole.

From all these additional case reports[10-17] it appears that excellent respiratory stimulation is achieved by the administration of Megimide alone or in combination with Daptazole. Clemmesen,[14] in his report of 70 patients with barbiturate poisoning, showed that in 7 patients with respiratory paralysis and total apnea, the respiration was restored to normal during or shortly after the administration of Megimide and Daptazole. The re-establishment of arrested respiration is a particularly significant result. This has not been achieved by means of any other drug.

In the majority of cases, increased reflex activity and an undoubted arousal effect, with reduction of the depth of coma, were obtained. However, contrary to the original observations made by Schulman, Shaw and co-workers,[2] the duration of coma did not appear to be shortened. The rate of the elimination of barbiturates was not increased. Megimide and Daptazole did not appear to restore consciousness at a higher blood barbiturate level than in the control cases, who did not receive these drugs for the treatment of barbiturate poisoning.[13]

Shaw and co-workers reported no side-effects from the use of Daptazole alone. They have pointed out the risk of inducing vomiting and convulsions by over-dosage of Megimide. If needed, intravenous Sodium Pentothal is given to abolish this type of toxic effects.

In other reports from the literature the following side-effects and complications were observed: restlessness, muscular trembling and twitching, retching, vomiting, convulsions, and mental disturbances. Vomiting was infrequent. The convulsions observed during the treatment were mild in most instances and consisted of short-lived attacks of tonic-clonic movements, which did not need any treatment. The convulsions appeared mainly in patients who were known to be addicted to barbiturates. The incidence of convulsions observed varied in different reports. Relatively high frequency was reported by Kjaer-Larsen;[15] among 50 patients treated, 16 had convulsions. Of these 16, only 4 patients had grand-mal seizures, 12 petit mal. Among the 4 with grand-mal seizures, 3 were addicts and among the 12 with petit mal seizures, 3 were addicts.

Mental disturbances appeared usually 1-3 days after the patient had regained consciousness and subsided spontaneously within 1-6 days. Mental disturbances had the characteristics seen in the withdrawal state; disorientation, fluctuation of attention, confusion, hallucinations and confabulations. Kjaer-Larsen[15] observed mental disturbances in 15 patients out of 50. Again, the majority of these 15 were known addicts.

Since Megimide has been shown to be a good respiratory stimulant and since hyperreflexia and convulsions can be produced with Megimide, Louw and Sonne[12] have questioned the validity of the hypothesis that Megimide is a barbiturate antagonist in a strictly biochemical sense. They suggest that Megimide counteracts the barbiturates by a central stimulant action.

More investigative work and observations are needed to clarify the exact mechanism of Megimide's action.

Megimide and Daptazole have been used in barbiturate poisoning, mainly in countries other than the United States. The majority of the case reports is from Europe and Australia. Only a few cases of barbiturate poisoning treated with these drugs are reported in the medical literature in the United States.[16-17] In the following report we are presenting four cases of barbiturate poisoning treated with Megimide and Daptazole.

Case Reports

Case No. 1: This fifty-five-year-old female, who was found unconscious in her room, was admitted to the hospital October 2, 1956, at 9:15 A.M. She was in deep coma. Her skin was cold, her lips, hands and feet were cyanotic. No response was obtained to painful stimuli. Pupils were midwide with no reaction to light. Corneal reflexes were absent. No

gag- or cough-reflexes were obtained. Biceps reflexes were depressed but equal. Knee- and Achilles-reflexes were absent. Babinski was negative bilaterally. The temperature was 98° F by rectum, the pulse 110, and the respirations 28; the blood pressure was 130/90. Respirations were shallow. Expiratory wheezing was heard over both lung-fields. Heart rhythm was regular, sounds distant. Liver edge was palpable 2 cm. below the right costal margin in mid-clavicular line. Spleen was not palpable. Urinary bladder was distended 7 cm. above the pubis.

The possibility of drug and/or alcohol intoxication was considered. She was known to have been suffering from bronchial asthma for many years. She had been taking medications for her asthma. She was also known to use alcoholic beverages.

On the basis of the information received from her neighbors it appeared likely that she had been in coma for longer than six hours. Therefore, the stomach was not aspirated. Her nose, mouth and throat were cleaned with suction. Oxygen 6 L./min. by nasal catheter was started. Blood was drawn for laboratory work, and intravenous fluids were started. Because of her bronchial asthma epinephrine 0.3 cc. of 1 :1000 solution was given subcutaneously, and aminophylline 7½ gr. was added to intravenous fluids. She was placed on Dicrysticin 2 cc. intramuscularly twice a day. When the laboratory reports were available, the blood barbiturate level was found to be 7.76 mg./100 cc. Neither morphine, nor alcohol were detected in the blood. Blood sugar was 128 mg./100 cc., BUN 9.2 mg./100 cc. Urinalysis showed a specific gravity of 1.009, a ++ test for albumin, many red blood cells, a few white blood cells and Bacteriae in the sediment.

The diagnosis of barbiturate poisoning was made.

Since the patient was in deep coma with respiratory depression, it was decided to use analeptic agents. Recently, we had had some experience with an experimental respiratory stimulant WIN 7969, N,N' — di — butylethylene diamine — N,N' — dicarboxy bismorpholide. Seven ampules of WIN 7969, each containing 45 mg. in 3 cc., were given intravenously, October 2, from 9:00 A.M. to 6:00 P.M. No appreciable results were obtained. The patient remained deeply comatose, with no reflex response and no response to painful stimuli.

October 2, at 6:00 P.M., nine hours after her admission, intermittent non-convulsive electrical stimulation was started using Reiter's stimulator. Electrodes were applied to fronto-temporal area, bilaterally. Currents up to 3 milliamperes were used. She was stimulated at 15 — 30-minute intervals for 30 minutes each time. From October 2, 6:00 P.M. to October 4, 10:00 P.M. she received 54 thirty-minute stimulations in 52 hours. The electrical stimulations improved her pulmonary ventilation. With forceful expirations the bronchial secretions were made more easily accessible to suction from throat and mouth. Electrical stimulation did not lighten the coma. On October 3, her barbiturate level was 8.35 mg./100 cc. and on October 4, it was 6.88.

On October 3, 24 hours after her admission, she developed fever of 102.6°F. by rectum. Physical findings of the chest revealed asthmatic expiratory wheezing over both lung-fields and moist rales over right lower posterior chest. A chest X ray taken on October 4, showed an area of increased density in the basal portion of the right lung consistent with pneumonitis. The Dicrysticin was continued.

October 4, 3:00 A.M., 42 hours after her admission, while on electrical stimulation, her blood pressure dropped to zero, her pulse rate increased to 150. Levophed was started intravenously. Three hours later her blood pressure was 110/80. The high pulse rate of 130-150 persisted and moist rales were heard over both lung-fields. She was digitalized with Digoxin intravenously and intramuscularly. A few hours after digitalization her pulse rate was found to be 76-100. Patient was continued on electrical stimulation with the purpose of supporting her pulmonary ventilation. In the intervals between the stimulations her respirations became shallow, pulse rate increased, and her face had a cyanotic tint despite the administration of oxygen. An electrocardiogram on October 4, taken during an interval between electrical stimulation, showed auricular tachycardia with block; auricular rate 200, ventricular rate 150.

October 4, at 10:00 P.M., 61 hours after admission, patient was still in deep coma without any reflex-response. It was decided to use Daptazole (2, 4 — diamino — 5 — phenylthiazole hydrochloride) and Megimide (beta, beta — methylethylglutarimide) intravenously, and to discontinue electrical stimulation. Dosage: Daptazole 1 cc., 15 mg., followed immediately by Megimide 10 cc., 50 mg., injected into the rubber-tubing of a 5% glucose in water intravenous infusion. This combination was repeated every 5 minutes. After the fourth dose the patient responded to painful stimuli and tried to open her eyes when her name was called. After the fifth injection muscle tone became normal (complete flaccidity before treatment). After the eighth dose she started to cough frequently and moved her extremities spontaneously. Corneal reflexes, pupillary light-reflexes and biceps reflexes were obtained. Knee- and Achilles-reflexes were not obtained. Normal plantar response was elicited. Slight spasticity of muscles was noted. Her face became flushed. No significant change in blood pressure occurred. Pulse rate increased from 80 at the beginning of treatment to 140 at the completion of treatment. Respirations became deeper, no significant

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change in the rate.

From this time on patient continued to cough spontaneously and to move her extremities spontaneously. No relapse into deep coma occurred. Surprisingly enough, the blood barbiturate level determined 11 hours after the administration of Daptazole and Megimide, was 8.16 mg./100 cc., which was higher than on the day before the treatment. And yet, with higher barbiturate level she was out of deep coma.

With the purpose of maintaining her responsive state 2 more courses of Daptazole and Megimide were given on October 5. Between 9:00 and 10:00 A.M. four injections of Daptazole (each dose 15 mg.) and Megimide (each dose 50 mg.) were given. After this she became more responsive; with effort she was able to state and spell her own name. Between 3 and 4 P.M. four more injections of Daptazole and Megimide were given. After the fourth dose she was able to answer several simple questions. About 15 minutes after the fourth dose she vomited a small amount of gastric fluid.

In the morning of October 6, 96 hours after her admission, she was able to talk intelligibly. However, she still appeared lethargic.

From October 6 to October 12, her blood barbiturate level decreased from 6.4 mg./100 cc. to zero and her clinical improvement closely paralleled the decreasing blood barbiturate level. October 8, while her blood barbiturate level was 4.55 mg./100 cc., the lethargy had subsided, and the temperature, pulse, respirations and blood pressure were within normal limits. Her speech was still slow and thick. She was fully oriented as to place and person, partially oriented as to time. Her memory for the recent events was impaired. October 12, when there was no longer any barbiturate in the blood, she became ambulatory.

During the first four days of hospitalization she was attended continuously by a nurse and a doctor. Among supportive measures used were: frequent cleaning of airways, oxygen, intravenous fluids. Her bronchial asthma was treated with epinephrine and aminophylline parenterally. Her urinary output was satisfactory throughout the course. No major electrolyte problems were encountered. Potassium chloride was added to intravenous fluids as needed. Her hemoglobin and hematocrit were satisfactory. Her white bood cell count was elevated to 16,850 with 80% neutrophils on October 5. The liver function tests were within normal limits. Follow-up electrocardiogram of October 8 showed normal sinus rhythm, no abnormalities. Chest X ray of the same date showed clearing of pneumonitis.

Patient had one persistent complaint after full awakening. She complained of headaches, particularly over the left frontal area. October 9 she was seen in neurological consultation. The only positive finding obtained was hyper-reflexia of the left upper extremity as compared to the right. Skull X rays of October 17 showed no demonstrable pathology. Electroencephalogram of the same date showed a normal pattern. It is possible that her frontal headache was due to pressure-sores from the electrodes used for electrical stimulation. Gradually the pressure-sores healed and the headaches subsided.

She was discharged on November 11, 1956. She was well enough to return to work. Following her discharge she was seen in the Out-patient Clinic because of her bronchial asthma. She did not complain of any headaches and the previously noted reflex differences were not present.

Information concerning the amount of barbiturates she ingested was not clear. She did remember that she had taken a handful of Tedral-pills for her asthma, and also phenobarbital. A Tedral tablet contains: theophylline 2 gr., ephedrine 3/8 gr., phenobarbital 1/8 gr. The type of barbiturate found in her blood, determined chromatographically, was phenobarbital.

Case No. 2: This forty-eight-year-old female was admitted to the hospital in comatose state November 19, 1956 at 8 P.M.

According to the information received from her sister, she apparently had taken an overdosage of "sleeping pills" 4 — 6 hours prior to her admission.

From her history it was known that she had attempted suicide twice during the past two years. Also it was known that she drank alcoholic beverages. About 10 years ago she was treated for tuberculosis of the lung. Since 1953 no activity of the tuberculosis was detected. Last chest X ray of September 21, 1956 showed fibrotic changes in the apical portion of both lungs.

Upon arrival at the hospital the patient was found to be in deep coma. No smell of alcohol was detected on her breath. Her lips were cyanotic. She did not respond to painful stimuli and no reflexes were obtained. The pupils were dilated without any response to light. The temperature was 104°F by rectum, the pulse 120, weak; and the respirations 30, shallow. The blood pressure was 120/90. Heart rhythm was regular, no murmurs were heard. Diffuse rhonchi were heard over both lung-fields. The liver edge was palpable 3 cm. below the right costal margin in mid-clavicular line. Her stomach was lavaged. During this procedure patient started to vomit and apparently aspirated the vomitus. She became cyanotic, apneic, and pulseless. A catheter was inserted into the trachea and the airways were cleaned with suction, and manual artificial respiration was started. Within a few minutes she was breathing spontaneously again, and her pulse became palpable. Oxygen was given by nasal catheter, blood was drawn for laboratory studies, 5% glu-

cose in water was started intravenously and penicillin was started intramuscularly. A Foley catheter was inserted into the urinary bladder. Since she had a considerable amount of mucus in the airways and her respirations were shallow, a tracheotomy was performed and an endotracheal tube was inserted.

November 20 at 1 A.M., 5 hours after her admission, she was still in deep coma without any response to painful stimuli and without any reflex-response. It was decided to use Daptazole and Megimide intravenously, by injecting them into the rubber-tubing of 5% glucose infusion. Dosage: Daptazole 1 cc., 15 mg., followed immediately by Megimide 10 cc., 50 mg. This combination was repeated every 5 minutes. After the fourth injection plantar and patellar response was obtained. After the fifth injection spontaneous movements of her lips were noted. She started to cough. Her fingers became spastically flexed. During the treatment her blood pressure rose from 110/80 to 160/105. Pulse rate increased from 88 to 100. The breathing became deeper, the rate of respiration varied between 12—22. It was considered that the patient was brought to the "safe state." No more injections were given at this time. After the treatment the patient remained responsive to stimuli and coughed frequently. Ten hours later, with the purpose of maintaining the "safe state," another course of Daptazole and Megimide injections was given. After the second injection she moved her right leg spontaneously and yawned repeatedly. After the fifth injection she coughed more frequently, moved her extremities, opened her eyes and responded to simple commands, e.g., she lifted her left arm when asked to do so. During the night of November 20, she was somewhat restless but continued to respond to stimuli and commands.

In the morning of November 21, 36 hours after her admission, she tried to answer questions, but her speech could not be understood because of aphonia due to the tracheotomy. In the afternoon of the same day she was able to express herself in writing. From then on her recovery was uneventful.

During the course of her illness supportive measures were used. The airways were kept clean with frequent suction and the endotracheal tube was changed frequently. Oxygen was given through the endotracheal tube; fluids, intravenously; and penicillin, intramuscularly. The temperature, which on admission was 104°F. by rectum, returned to normal on November 22. The initially elevated temperature was apparently due to the accumulation of secretions in the tracheo-bronchial tree and bronchitis. Chest X ray of December 3, 1956 showed a static, old, fibrotic tuberculous process involving the lung apices on both sides.

Her urinary output was satisfactory throughout the course. The laboratory studies of the blood and urine revealed no significant abnormalities. The blood barbiturate level could not be determined due to an accident to the specimen. However, the type of blood barbiturate was determined by paper chromatography and was found to be Seconal.

Before discharge the patient said that five hours prior to her admission she had taken a "handful" of "sleeping pills": Seconal, Sodium Amytal and Doriden.

Patient was discharged December 5, 1956, 16 days after her admission. The tracheotomy incision had healed completely and her general condition was good.

Case No. 3: A fifty-five-year-old white female was brought to the hospital following the ingestion of 13 tablets of Tuinal, each containing 3 gr. On admission the patient was deeply comatose, her respirations were depressed and there was evidence of increased bronchial secretions and cyanosis. Her upper respiratory tract was cleared by aspiration, and an airway was inserted. Gastric lavage was carried out and the stomach contents sent to the laboratory for analysis.

Ten cc., 50 mg., of Megimide, and 1 cc., 15 mg., of Daptazole were administered by slow intravenous injection. The Megimide was repeated in 50 mg. doses every 5 minutes until the patient had received a total of 200 mg. At the end of 20 minutes the patient responded to treatment and showed signs of returning consciousness. She responded to painful stimuli, her respirations increased in depth, and her pupils dilated. No further medication was given. Six hours later the patient awoke as if from normal sleep.

Case No. 4: A fifteen-year-old white female ingested twelve 1½ grain capsules of Nembutal. According to the history obtained from an onlooker the patient became drowsy ten minutes later. Thereafter, she became progressively more comatose.

Approximately 20 minutes after she had taken the drug she was brought to the accident room. On examination the patient was comatose. Her respirations were shallow, with a rate of 26. There was no evidence of cyanosis. The patient did not respond to painful stimuli. Her pupils were pinpoint and did not react to light. Her corneal reflexes were absent. The tendon reflexes could not be elicited. The plantar responses were normal. The laryngeal and pharyngeal reflexes were present and she had a clear airway. The pulse rate was 70, of good quality and regular rhythm. Blood pressure was 110/75. The heart sounds were good, their rhythm regular.

A diagnosis of barbiturate poisoning was made in view of the history and physical findings. This was later confirmed by laboratory studies. Treatment was instituted on the basis of the clinical diagnosis

continued on next page

and was as follows: Having ascertained that the patient had no obstruction to her airway, she was placed in the shock-position with her head down and her extremities elevated. This was done to facilitate drainage of any bronchial secretions and minimize aspiration of any gastric contents. A Levine tube was passed into the stomach, and gastric lavage was commenced using sterile water; simultaneously an assistant administered 1 cc., 3 mg., of picrotoxin, intravenously. Gastric lavage gave a disappointing result since only a small quantity of the ingested drug was salvaged. No response was noted within 10 minutes of the administration of picrotoxin and it was decided to institute treatment with Megimide.

Initially the patient received 10 cc., 50 mg., of Megimide by intravenous injection over a 5-minute period. On completion of the injection, dilation of the pupils was noted and the patient responded to painful stimuli. At this point it was considered safe to move the patient to the ward.

Once in bed the patient was again examined, this time in consultation with an anesthesiologist, who recommended suction of the upper airways because patient was producing an excess of secretion. 1,000 cc. of 5% glucose in water was administered intravenously. 600,000 units of pencillin was given as a prophylactic measure.

Treatment with Megimide was reinstituted and Daptazole was added. Ten cc., 50 mg., of Megimide followed by 1 cc., 15 mg., of Daptazole were given intravenously. This dosage was repeated at intervals of 5 minutes. A careful watch was made to observe any signs of overdosage. Following the fourth injection the patient responded, the pupils dilated, tendon reflexes returned and the patient regained consciousness. The patient then entered a stage of extreme excitability becoming increasingly more difficult to control. She thrashed around the bed, screaming.

Discussion

Table 1 summarizes the four cases of barbiturate poisoning treated with Daptazole and Megimide. The patients were females between the ages of 15 and 55 years. Patient No. 1, who had ingested an unknown amount of phenobarbital, was in the deepest grade of coma, grade IV. Grade IV coma denotes significant respiratory and circulatory depression with the absence of most or all of the reflexes.

Patient No. 2 had ingested barbiturates and Doriden, patient No. 3 barbiturates. These two patients were in grade III coma showing respiratory depression and absence of reflexes. Patient No. 4 had ingested 1.2 gm. of Nembutal and was in Grade II coma, with no respiratory or circulatory depression.

The classification of Reed and co-workers[18] is used in dividing the cases of barbiturate poisoning into different grades of severity.

In these four cases the supportive measures used were: meticulous care of the airways, oxygenation, pressor agents, intravenous fluids, antibiotics. Gastric lavage was performed in cases 2, 3 and 4. The danger of gastric lavage in a patient without pharyngeal and laryngeal reflexes is demonstrated in patient No. 2; she aspirated the regurgitated gastric contents and became apneic. Artificial respiration was needed to re-establish breathing. In this case tracheotomy was performed to secure an adequate airway.

In case No. 1, a respiratory stimulant, WIN 7969, and non-convulsive electrical stimulation were used initially. No appreciable effect was obtained from the stimulant. The electrical stimulation was of great help: the depth of respiration was augmented and the circulation appeared to be improved. No arousal effect was obtained. The shock and cardiac arrhythmia observed in case No. 1 during the electrical stimulation appeared to be the complications of barbiturate poisoning rather than the result of the electrical stimulation. After the patient was brought out of shock with pressor-agents, the electrical stimulation was continued without any deleterious effect to the patient. The

TABLE NO. I

Four cases of barbiturate poisoning treated with Daptazole and Megimide

Case No.	*Sex*	*Age*	*Drug ingested*	*Dose gm*	*Grade of coma*	*Duration of coma until administration of Daptazole and Megimide*	*Total dose used*		*Time-interval between administration of Daptazole and Megimide and arousal effect*	*Waking Time*		*Outcome*
							Daptazole i.v.	Megimide i.v.		From administration of Daptazole and Megimide	From ingestion of barbiturates	
1.	F	55	Tedral (theophylline, ephedrine and phenobarbital), and Phenobarbital	Unknown	IV	67 hrs.	16.3 cc = 244.5 mg	161 cc = 805 mg	30 min.	Hrs. 35	Hrs. 102	Recovered
2.	F	48	Seconal, Sodium Amytal, Doriden	Unknown	III	10 hrs.	10 cc = 150 mg	100 cc = 500 mg	30 to 45 min.	31	41	Recovered
3.	F	55	Tuinal (Seconal and Amytal)	2.6	III	½ hr.	1 cc = 15 mg	40 cc = 200 mg	20 min.	6	6½	Recovered
4.	F	15	Nembutal	1.2	II	¾ hr.	4 cc = 60 mg	50 cc = 250 mg	5 min.	½	1¼	Recovered

electrical stimulation was continued because the patient's breathing became dangerously shallow without it. The delay in the administration of Daptazole and Megimide was due to the difficulties in obtaining these drugs. When they became available there was no hesitancy in using them. Because of the patient's extremely poor condition after 67 hours in coma complicated by pneumonia, shock and cardiac arrhythmia, any favorable response to these drugs would have been surprising. To see the patient's respiration improved, to observe her respond to painful stimuli and even try to open the eyes, after receiving 60 mg. of Paptazole and 200 mg. of Megimide, was indeed surprising.

The total dose of Daptazole and Megimide given in each case is shown in table 1. In each case these drugs were given slowly intravenously in separate syringes. Each injection of Daptazole contained 15 mg. in 1 cc. and each injection of Megimide 50 mg. in 10 cc.

In case No. 1 the first course of treatment consisted of 8 consecutive injections of each drug. To maintain the "safe state" and to prevent regression into deep coma, two additional courses of Daptazole and Megimide, each consisting of 4 injections, were given at 7-9-hour intervals.

In case No. 2 two courses of treatment, each consisting of 5 injections of Daptazole and Megimide, were given, the second 10 hours after the first.

In case No. 3 only one course of treatment, consisting of 1 injection of Daptazole and 4 injections of Megimide, was used.

In case No. 4 the course consisted of 4 injections of Daptazole and 5 injections of Megimide.

In case No. 4 the effectiveness of Megimide compared to picrotoxin was demonstrated. No arousal effect was obtained with 1 cc., 3 mg., of picrotoxin intravenously. About 20 minutes after the picrotoxin was given, a test-dose of 50 mg. of Megimide was given over a 5-minute period. On the completion of this injection the patient started to respond to painful stimuli.

A distinction is made between "arousal" and "awakening." Arousal is signified by the appearance of response to painful stimuli, the return of reflexes and spontaneous movements and improvement in respiration and circulation. Awakening has occurred when the patient is able to answer questions intelligibly.

In the four patients the arousal effect was obtained within 5-45 minutes from the administration of Daptazole and Megimide.

The time for awakening was shortest, ½ hour, in case No. 4, the least severe case of barbiturate poisoning. This was the only patient among the four, who was awakened completely with the administration of Daptazole and Megimide. Trying to bring the patient to full consciousness may precipitate complications. Actually, in case No. 4 side-effects were noted; the patient became very restless and excitable. Since this patient showed no respiratory or circulatory depression while in coma, it appears that she would have recovered with supportive therapy only.

In case No. 3 the waking time was 6 hours. This corresponds to the observations made by Schulman, Shaw and co-workers.[2] The waking time in cases 1 and 2 was longer, 35 and 31 hours respectively. Apparently, the more severe the barbiturate poisoning, the longer the waking time.

The blood barbiturate levels in case No. 1 are given in *Table 2*. It can be seen that the blood barbiturate level 6 hours after the ingestion of barbiturates was 7.76 mg./100 cc. The following day it rose to 8.35, a level which signifies severe poisoning when the type of barbiturate is phenobarbital, as in this case. October 4, while patient remained in deep coma, the barbiturate level decreased to 6.88. The increase of barbiturate level to 8.16 on October 5 is surprising. The blood for this determination was obtained 11 hours after the patient was brought to the "safe state" with the administration of Daptazole and Megimide. On the basis of additional laboratory studies, it was found that neither Megimide nor Daptazole interferes with the analysis of blood barbiturates. Instances of blood barbiturate levels becoming higher during clinical improvement of barbiturate poisoning have been observed by others.[17] An explanation is suggested by the work of Waddell and Butler,[19] who showed that the equilibrium between the undissociated and dissociated barbiturate concentrations depends upon the pH of the blood. Tissues contain the undissociated form of barbiturate and plasma contains the dissociated form. Raising the plasma pH increases the dissociated barbiturate of the plasma and decreases the undissociated barbiturate of the tissues, including the brain; when the brain barbiturate level de-

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TABLE NO. II

Blood barbiturate levels in case No. 1

Date	Hours after ingestion of barbiturates	Hours after administration of Daptazole and Megimide	Blood barbiturate levels mg/100 cc
10/2/56	6	.....	7.76
10/3/56	30	.....	8.35
10/4/56	54	.....	6.88
10/5/56	78	11	8.16
10/6/56	102	35	6.4
10/7/56	126	59	5.5
10/8/56	150	83	4.55
10/9/56	174	107	3.29
10/10/56	198	131	2.5
10/11/56	222	155	1.79
10/12/56	246	179	0

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MEDICAL EDUCATION IN THE CHANGING WORLD

HOW SHALL WE educate the young man who desires to enter our profession? What kind of educational equipment should he bring to the medical school and when he has been enrolled there, how shall he be fashioned so that he may enter upon his career as a competent physician? Again, how shall he be imbued with the spirit of science and introduced to the practical art of healing? These and other problems relative to medical education are discussed by Doctor Willard C. Rappleye in his *Report of the Dean of the Faculty of Medicine of Columbia University* for the academic year ending June 30, 1958. Although Doctor Rappleye's report is concerned primarily with the medical curriculum of Columbia University, it should be of interest to all of us, especially to those whose contact with medical education is remote.

Whatever else they may have done, the sputniks have certainly produced a plentiful supply of critics of our American system of general education. There are many viewers with alarm who inform us that we have been complacently wandering in a pedagogical wilderness from which we must be rescued because we have misconceived both our methods and our goals. So far as we are aware, no one claims that there is a debacle in medical education; on the contrary, Doctor Rappleye presents abundant evidence that it is constantly improving especially in those schools that are organic to a university.

Doctor Rappleye reminds us how rapidly the environment of medicine is changing and will continue to change in our enormously complex society. These changes will have an impact on the problems of medicine and medical education. Some of these changes are: the industrialization of the country; the high rate of urbanization; the migration of the population (during the last 12 months 33,000,000 people moved to new locations, the largest shift in history, mostly through the development of suburbs of the metropolitan areas and loss from the farm to the industrial states); new methods of communication and transportation, the aging of the population which is accompanied by an increase in

chronic diseases; the ever increasing complexity of knowledge with necessary specialization; the rising costs of health care, the growth of prepayment insurance; the conducting of government largely by pressure groups; the increasing voice government has in all of our daily activities; the emphasis on preventive medicine, mental disorders, chronic illness, rehabilitation, and the extension of mass education. Yet the needs of the patient and his family in matters of health, sickness, and disability are still personal and individual.

Such being the milieu in which the physician must live and work, his education should be commensurate with the multifarious demands made upon him. As Doctor Rappleye remarks, the objective of the medical course is to produce upon graduation neither a specialist nor a physician who can render every type of professional care, but rather one who, after an internship, is prepared to begin practice as a well-rounded, competent, safe, and conscientious family physician or to go forward to advance work in a limited field.

Importance is being placed increasingly, in the evaluation of the student, upon his ability to think for himself; to demonstrate initiative, imagination, intellectual curiosity, scientific critique, and resourcefulness to face alternatives and to make decisions; and to develop understanding of diseases and of people, rather than knowledge of them alone. The reliance is being placed upon performance, judgment, discrimination, and intellectual self-reliance which reveal the intangibles and imponderables that mark the true physician.

When we first read this summary of the abilities which the medical student should possess or acquire, we became a little frightened; indeed, we were constrained to wonder whether, after years of study and experience, many of us have attained to them. But then we comforted ourselves with the reflection that Dr. Rappleye is describing the ideal student. No doubt, when confronted by the spotted reality, he, being the kindly humanist that he is, would not be too hard on the aspiring student, and would perhaps allow some slight diminution of these very high standards of excellence.

Should the medical student have a liberal education? Dr. Rappleye firmly believes that he should, for he says, that a true liberal education is an essential requirement for the physician of the future; in its finest form the pre-professional liberal arts period should give the student an opportunity to understand, appreciate, and share the cultural heritage of our civilization. To curtail that opportunity which comes only once in a lifetime, and limit the college segment for physicians largely to an abbreviated contact with a true liberal arts preparation and a condensed curriculum in the basic sciences supplemented by superficial acquaintance with a few social problems may not serve the best purposes of the profession and, in the long run, of the nation.

One hundred years ago John Henry Newman condensed into one luminous paragraph what our foremost medical educators are saying today. These are his words—"This process of training, by which the intellect, instead of being formed or sacrificed to some particular or accidental purpose, some specific trade or profession, or study or science, is disciplined for its own sake, for the perception of its own proper object (truth), and for its own highest culture, is called Liberal Education; and though there is no one in whom it is carried as far as is conceivable, or whose intellect would be a pattern of what intellects should be made, yet there is scarcely anyone but may gain an idea of what real training is and at least look towards it, and make its true scope and result, not something else, his standard of excellence."

The foregoing is only a glimpse, a mere aeroplane view of Dr. Rappleye's richly rewarding report. It should be read, and not only read but pondered, by everyone who may be interested in the content and methods of modern medical education.

RADIATION INJURY

Amid the hysterical hue and cry in our legislative halls and press concerning the dangers of radioactive fallout, it is reassuring to learn from an authoritative and reliable source that these dangers are greatly exaggerated. Printed elsewhere in this issue is the Seventeenth Charles Value Chapin Oration titled, *The Prevention of Somatic and Genetic Radiation Injury*, delivered by Doctor Shields Warren of Boston, Massachusetts, before the one hundred and forty-seventh annual meeting of the Rhode Island Medical Society. Doctor Warren, who is professor of pathology at the Harvard Medical School and a member of the Executive Committee of the Division of Medical Sciences of the National Research Council, has been closely and continuously associated with the problems of mass radiation injury since 1945 when as a Naval Medical Officer he was initially assigned to the group which was sent to Japan to evaluate the effects of atomic radiation at Hiroshima and Nagasaki.

It is urged that all who failed to hear this learned and highly informative dissertation, should not now miss the opportunity of reading it. Those fortunate enough to be present on that felicitous occasion will welcome the prospect of perusing its contents thoughtfully and at leisure, and will be no less rewarded.

Doctor Warren, whose opinions are reinforced by a vast experience, assumes a decidedly conservative attitude. His conclusions in regard to radioactive fallout are significant and striking, and

concluded on next page

deserve a wider circulation: "I think we can say quite clearly, on the basis of the evidence at hand, that radioactive fallout at the present time is not likely to cause harm from continued bomb testing, because it is less significant than the changes in background radiation that are produced by changes in altitude alone. Thus, the move from Providence to Denver involves the receipt of an increased amount of background radiation compared to which radioactive fallout is of very minor significance."

THE ROAD TOLL

In its traffic safety booklet, THE ROAD TOLL, published annually, the Travelers' Insurance Companies have compiled some interesting and alarming statistics for 1957, of which the following is a partial summary: 53,000 Americans were injured in car-bicycle mishaps; 38,000 were killed and 2,525,000 injured in traffic accidents; speeding was blamed for 13,200 deaths; 7,500 pedestrians were killed by automobiles; 26,000 were killed because of jay-walking.

More than 95 per cent of vehicles involved in fatal accidents were apparently in good condition. Bad driving conditions prevailed in less than 15 per cent of the fatal accidents. Weekends are the most dangerous time to be on United States highways, for more than 55 per cent of all fatalities occurred on Fridays, Saturdays, and Sundays. Nearly 27 per cent of drivers involved in traffic fatalities were under twenty-five years of age. Passenger cars were involved in over 78 per cent of traffic fatalities and in 86 per cent of traffic injuries. More than 370 people were killed while crossing incautiously at intersections. Excessive speeding was the greatest single cause of accidents. A total of 13,200 were killed and 837,000 injured in speeding accidents alone.

Commenting on this record of carnage and the economic and social waste and misery which the annual road toll represents, Mr. J. D. De Witt, president of the Travelers' Insurance Companies remarks, "Accidents are caused by ordinary people of sound mind and good will. Before the devastating crash they wanted nothing more than to get from one place to another. The toll they paid was more than the coin they handed to the collector. It was injury, destruction, sometimes death. We urge you to join in a national effort to reduce this grim road toll during the coming months and years."

HEALTH CARE OF AGED

Those who have been clamoring for some positive action by the American Medical Association in view of its strong objection to the Forand social security proposals have their answer in part in the recent public notice of the formation of a Joint Council to Improve the Health Care of the Aged.

This Council is more than a name. It has already held several meetings within the short six weeks of its existence to implement its objectives of:

> "identifying and analyzing the health needs of the aged; appraising available health resources for the aged; and developing programs to foster the best possible health care for the aged regardless of their economic status."

Jointly engaged in the work with the A.M.A. are the American Hospital Association, the American Dental Association, and the American Nursing Home Association. First job to be undertaken will be to determine exactly what are the health problems of the aged, and how the problems are to be solved with the aid of all available private and public agencies.

Another facet of the council's program will be to work closely with health insurance groups in an effort to improve the coverage of the aged and to see that their insurance dollars go further.

We note with pride that our own Physicians Service and Blue Cross programs have covered persons of any age, and currently more than 36,000 persons have coverage under one or both of our voluntary prepaid plans.

BOOK REVIEW

GENERAL UROLOGY by Donald R. Smith, M.D. Lange Medical Publications, Los Altos, Calif., 1957. $4.50

GENERAL UROLOGY by Donald R. Smith is an excellent book within its own stated limitations. It has been written primarily for the student and general practitioner. As a consultation room reference book it would serve the purposes of most physicians. The information is divided into two sections and arranged in outline form. Detail is necessarily limited but this deficiency is partly corrected by including a bibliography at the end of each chapter. Each disease entity is divided into etiology, pathology, clinical findings, differential diagnosis, complications, treatment and prognosis.

The book is paper bound and printed by the offset method. This may account for the generally poor reproduction of the numerous illustrations. The X rays especially are muddy and indistinct. The line drawings are somewhat better but because of over-emphasis on detail, again reproduction is poor.

It would be a worthwhile acquisition to any doctor's library for its rather modest price.

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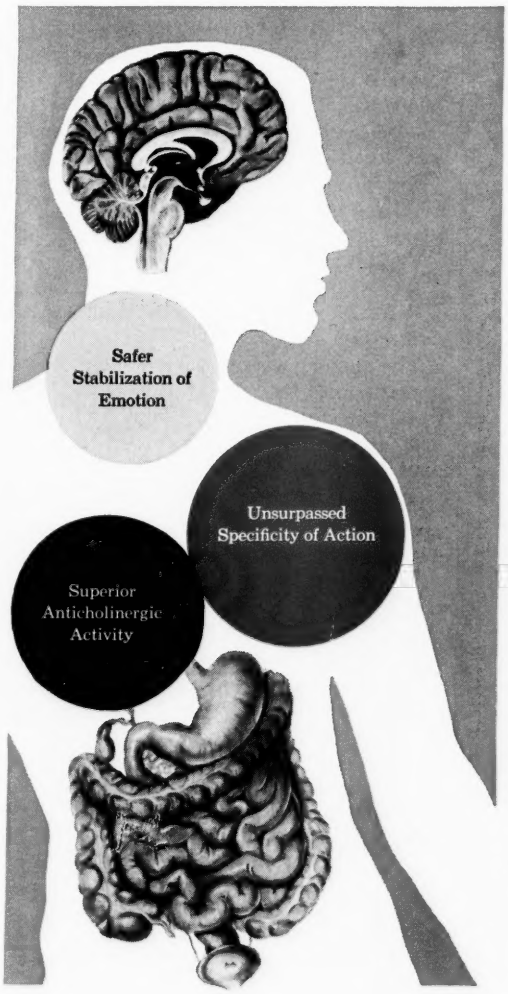

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Research in the Service of Medicine.

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creases, the coma lightens. If this was the mechanism in case No. 1 it could not be determined, because the blood pH was not checked. Another possible explanation for the increased blood barbiturate level after the administration of Megimide is the displacement of barbiturate in the brain and its diffusion into the blood by the competitive inhibition of Megimide.

The complete elimination of phenobarbital in case No. 1 took 10 days. Thus, the average rate of elimination in 24 hours, reflected in the decreasing blood barbiturate levels, was 10%. This corresponds with the observation made by others.[19] No significant increase in elimination was obtained with the use of Daptazole and Megimide.

The complications from the administration of Daptazole and Megimide were few. Restlessness was observed in cases 2 and 4. In case No. 1 vomiting occurred during the treatment; disorientation, hyperreflexia of left upper extremity and headaches were observed after the patient was fully awake. All of these complications subsided without any treatment, except aspirin for headaches.

The complications of the barbiturate poisoning itself, which appeared before the administration of Daptazole and Megimide, were more serious. In case No. 1 these complications were: respiratory depression, pneumonia, circulatory depression with shock and cardiac arrhythmia. In case No. 2 the complications were: hyperthermia, bronchitis, respiratory depression, and apnea due to aspiration of regurgicated gastric contents. Case No. 3 showed respiratory depression.

SUMMARY

The properties of two new drugs, Megimide and Daptazole, are discussed.

The literature on the use of these drugs in the treatment of barbiturate poisoning is reviewed.

A possible mechanism of the action of Megimide as a barbiturate antagonist is considered.

Four cases of barbiturate poisoning, varying in severity from very severe to light, were treated with Megimide and Daptazole. In these 4 patients the administration of Megimide and Daptazole resulted in improvement of respiration and return of reflexes.

No serious side-effects from the use of these drugs were encountered. All 4 patients recovered.

It appears that Megimide and Daptazole are valuable drugs in the treatment of severe barbiturate poisoning. Rapid arousal obtained with the administration of these drugs lessens the incidence of complications and decreases the number of fatalities from barbiturate poisoning.

However, the supportive therapy remains the cornerstone of treatment of barbiturate poisoning.

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Acknowledgments

Cases No. 1 and 2 are from the Medical Service of State Hospital for Mental Diseases, Howard, Rhode Island. Cases No. 3 and 4 are from the Medical Department of the Newport Hospital, Newport, Rhode Island.

The blood barbiturate determinations were done by Alfred V. Villatico, B.S., M.T. (ASCP), of the Rhode Island State Toxicology Laboratory.

The Megimide and Daptazole were supplied by A & G Nicholas, Ltd., Slough, Bucks., England.

WIN 7969 was supplied by Winthrop Laboratories, New York.

The authors wish to acknowledge the valuable suggestions of Dr. Alex M. Burgess, M.D., Educational Director of Rhode Island Affiliated Hospitals: Newport Hospital, Pawtucket Memorial Hospital and Miriam Hospital

REFERENCES

[1]Shaw, F. H.; Simon, S. E.; Cass, N. M.; Schulman, A.; Anstee, J. R.; and Nelson, E. R.: Barbiturate Antagonism, Nature, London, 174:402, 1954

[2]Schulman, A.; Shaw, F. H.; Cass, N. M.; Whyte, H. M.: A new treatment of barbiturate intoxication, Brit. M. J. 1:1238, 1955

[3]The treatment of acute barbiturate poisoning, German Med. Monthly 1:95, 1956

[4]Cass, N. M.: An electro-encephalographic study of the analeptic action of beta, beta — ethylmethylglutarimide (Megimide), Brit. J. Anesth. 28:325, 1956

[5]Delay, J.; Verdeaux, G.; Verdeaux, J.; Dressopoulo, G.; Schuller, E.; and Chanoit, P.: Un-neuro-stimulant épileptogène; la mégimide, Presse méd. 64:1525, 1956

[6]McKeogh, J.; and Shaw, F. H.: Further experience with amiphenazole and morphine in intractable pain, Brit. M. J. 1:142, 1956

[7]Holmes, J. M.: Amiphenazole in neonatal apnoae due to morphine, Lancet 2:334, 1956

[8]Shaw, F. M.: Use of Amiphenazole in childbirth, Lancet 2:464, 1956

[9]Holmes, J. M.: Amiphenazole in obstetric analgesia, Lancet 2:765, 1956

[10]Eason, D. W.; and MacNaughton, F. I.: Barbiturate coma with hypothermia, Lancet 1:835, 1956

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DISTRICT MEDICAL SOCIETY MEETING

WASHINGTON COUNTY MEDICAL SOCIETY

The regular meeting of the Washington County Medical Society met on April 9, 1958, in the Nurses' Home of the Westerly Hospital, with the president, Doctor Frederick Eckel presiding.

The minutes of the last meeting were read and approved.

In the absence of the secretary, Doctor Tatum was asked to be Secretary *pro tem.*

UNFINISHED BUSINESS. The applications for membership from Doctor Burbelo and Doctor Roberge have not been acted upon by the Board of Censors. Doctor Morrone moved that the Society approve of the applications of Doctor Burbello and Doctor Singer and that they be accepted into the Society at once.

Doctor Agnelli made a short report for the Legislative Committee. There are about twenty-five bills pending in the legislature, but no action has been taken.

Doctor Ladd has been honored for his many years of service to the Exeter School which has now been named for him. Doctor Cerito and Doctor Agnelli are asked to prepare a resolution expressing our interest and approval, a copy to be forwarded to Doctor Ladd.

Doctor Nestor reported that the situation of the Santa Barbara Medical Society does not apply here. We have one of the best medical-social programs in the United States.

Doctor Agnelli reported on the dinner meeting with the Bar Association to be held April 30th. After dinner at the Larchwood Inn there will be a panel discussion, including two doctors and two attorneys, on *The Preparation of a Trial and the Conduct of a Trial.* It will be presided over by a lawyer.

Doctor Farago reported on the revision of the by-laws. The Committee recommends that:

1. Members at Quonset be given "temporary" status;
2. An executive committee conduct the business of the Society between meetings; and that it
3. Arrange the agenda for the meetings.

Doctor Agnelli moved that a copy of the new by-laws be placed in the South County Hospital, and one in the Westerly Hospital so that the members may study them before the next meeting.

Doctor Farago spoke of the Physicians Service. Eight years ago when it was started, $3,600.00 wage limit represented 63% of the people. Now it represents only about 30%. A limit of $5,000.00 now more nearly represents about 40% of the people and fees should be adjusted accordingly.

Members are invited to talk with Doctor Farago or Doctor McGrath in the next week, giving their opinions to these representatives of our Society.

SCIENTIFIC SECTION. Doctor Richard Singer, pathologist of the Westerly Hospital, gave a very interesting talk, illustrated with slides, on the *Pathology of Some Common Skin Lesions.*

The meeting then adjourned and dinner was served at the Hospital to nineteen members and one guest.

Respectfully submitted,

JULIANNA R. TATUM, M.D., *Secretary, pro tem*

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PUBLIC LAWS — 1958

Summary of Medical, Public Health and Allied Legislation before the Rhode Island General Assembly, January Session, 1958

FOR THE SECOND successive year the General Assembly failed to approve of legislation calling for chemical tests for motorists alleged to be under the influence of intoxicating liquors, although the legislation had the support of many community groups, including the Rhode Island Medical Society.

The session presented the usual average of proposals involving medical, public health and allied legislation that called for hearings at the State House attended by legal counsel and the executive secretary, and for action on several important measures by the Committee on Public Laws of the Society.

A summary of the major proposals follows:

Air Pollution

Two acts that would provide for the control of air pollution by the State Department of Health were left in committees. The Public Laws Committee of the Society supported the legislation in the interest of better public health, and with the thought in mind that the towns and smaller cities of the state need expert help and guidance in surveying local air pollution problems.

Aging

A division on Aging within the executive department was established to develop programs to promote the health and medical services for the aging, working with professional associations, hospitals and institutions. An Advisory Committee of fifteen members is to be named by the Governor to aid in the work of the division.

Auto Safety

There was an unusual number of proposals presented relative to the improvement of highway safety. As noted above, the chemical test legislation for alleged intoxicated drivers was defeated. Likewise, a driver training program to be financially supported by an increased tax on the motorist's license, was defeated in spite of support for it from many civic groups.

One bill passed requires the periodic inspection of motor vehicles at least one year old, beginning January 1, 1959, and continuing thereafter at least once and not more than twice annually.

Blue Cross-Physicians Service

Similar resolutions were presented to the Senate and the House requesting the Blue Cross and Physicians Service to remove what were termed "restrictive clauses regarding veterans." (These clauses provide that indemnity is not provided when the beneficiary receives the hospital-medical care at a government maintained institution for which a direct charge is not made to the patient.) Both bills died in committees.

A House act was passed that would call for a broad investigation of the rates and services of Blue Cross and Physicians Service. The proposal passed the House and remained in a Senate committee at adjournment of the Assembly. A House resolution presented late in the session that called for a similar investigation, without a state appropriation, remained in a House committee.

Education

The gifted child, subject of discussion by the Society's Child-School Health Committee during the past year, will be aided under a bill passed appropriating $60,000 to finance the start of an educational program for talented children to be financed jointly by the state and local governments.

Also enacted was a resolution creating a special commission to study the methods of providing financial assistance for students pursuing higher education, and making an appropriation therefor.

Emergencies — Use of Telephone for

Hereafter failure to relinquish a party telephone line in emergencies affecting property or human life will be punishable. Telephone directories must carry notice of the new provision.

Hospitals

By enactment the Exeter School now becomes the Doctor Joseph H. Ladd School in honor of the former superintendent who devoted his lifetime to the administration of that institution. Doctor Ladd is a former vice president of the Rhode Island Medical Society.

The annual appropriations' bill for partial reimbursement of voluntary general hospitals for the cost of hospital facilities available to the citizens of the state was enacted calling for a total outlay of $547,700.

The plan for the state to take over Chapin Hospital from the City of Providence was shelved, and the state appropriation was increased from $200,000 to $400,000 to aid the city to continue the operation of the hospital. However, indications were that some buildings at Chapin may be made available to the state for the transfer of certain patients from the State Hospital for Mental Diseases and the Joseph H. Ladd School in Exeter.

Medical Examiners

Proposal for complete revision of the medical examiner act was shelved. One bill passed providing for an examiner in East Providence, bringing to twenty-four the number of medical examiners in the state.

Nonprofit Dental Plan

The Rhode Island State Dental Society was granted authority to establish a nonprofit dental service corporation. The act was similar to the enabling act that allowed the Rhode Island Medical Society to establish its prepaid surgical-medical plan.

Physicians and Surgeons

Osteopathic physicians licensed hereafter who have completed a qualified internship in an approved hospital will be eligible to perform major surgery without the special licensure examination required of all seeking such surgical privileges until this time.

A limited medical or osteopathic license will hereafter be permitted for interns, residents, and house officers in hospitals or other institutions. (This legislation stems from the requirement of the Federal Narcotics Bureau prohibiting anyone but a licensed physician to prescribe narcotics.)

Public Health

A resolution was adopted making an appropriation of $30,000 for the care and treatment of chronic metabolic diseases of childhood, the program to be administered by the state Department of Health. Also enacted was legislation amending the general laws to provide for stricter enforcement of the provisions relating to water pollution.

An act to regulate the possession, handling, control, dealing in, sale and distribution of food, drugs, cosmetics, and devices was passed in amended form by the Senate, but not reported out of a House committee.

Veterans Benefits

Two acts proposing free hospital and medical care for widows of World War I veterans were not reported out of committees. Likewise, a bill offering similar benefits at state expense for mothers of veterans of any war was left in committee.

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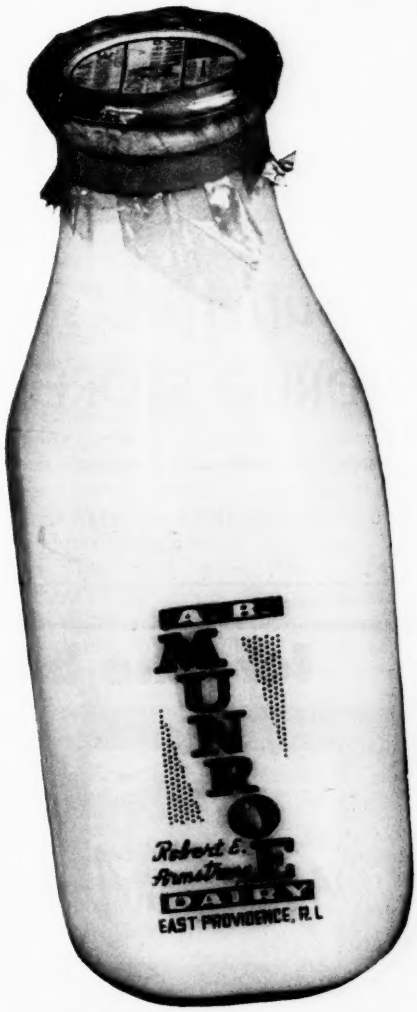

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Workmen's Compensation

Amendments to the Workmen's Compensation law were enacted to provide: additional compensation for specific injuries (i.e. loss by severance of both hands, both feet above ankle, irrecoverable loss of sight of both eyes, etc.); and that the Commission may, upon petition, vacate, modify, or amend any final decree if it shall appear that it was procured by fraud, or that it does not accurately and completely set forth and describe the nature and location of all injuries sustained by the employee.

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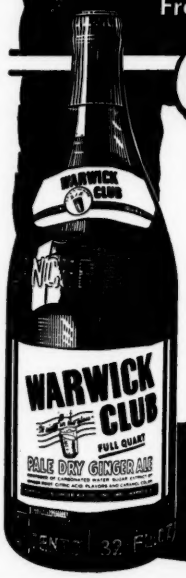

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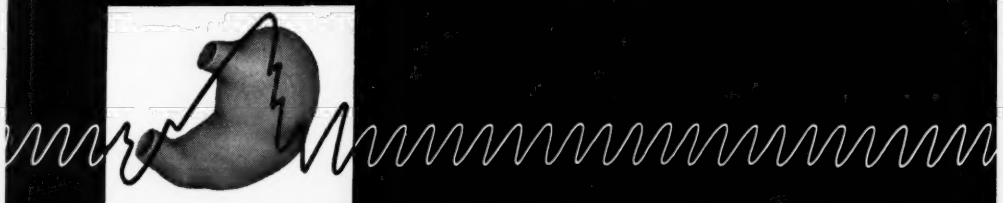

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- *is an effective dual antispasmodic*
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MEDICARE REGULATIONS

POLICY REGARDING THE FURNISHING OF DRUGS

1. PARAGRAPH 4j of ODMC Letter No. 4-58, dated 2 January 1958, and Section "A" of ODMC Letter 9-58, dated 26 February 1958, are cancelled as of 1 July 1958. Paragraph 4j of ODMC Letter No. 4-58 reads as follows:

"4. j. Physicians may add to their statements (DA Form 1863) those *drug items* which have been directly or indirectly furnished to the maternity patient. (Direct furnishing of drugs is: supplying drugs by the physician's office to the patient; indirect furnishing is: the physician writes a prescription to the patient but has the pharmacy bill him (the physician) for the drugs dispensed.)"

2. This change of policy is brought about for three major reasons:

a. The majority of the State Medical Associations considered the above policy objectionable.

b. The pharmacy profession considered the policy objectionable because pharmacies are traditionally paid in a direct manner.

c. Only a small percentage of the dependents receiving maternity care from civilian sources have benefitted from this policy.

3. The following shall apply beginning 1 July 1958:

a. Payment for oral medication dispensed or prescribed by physicians providing care authorized under the Medicare Program to eligible dependents will be the responsibility of the patient or sponsor and will not be compensable to physicians under the Medicare Program.

b. Physicians furnishing authorized care to eligible dependents under the provisions of the Dependents' Medical Care Act may include the cost to them of those drugs which they administer parenterally, provided such drugs are necessary and directly related to the condition for which authorized care and treatment are being furnished.

c. In order for a physician to obtain reimbursement for any drug administered parenterally, he must identify the nomenclature and quantity of the drug and set forth the cost thereof to him on the Claim Form or attachment thereto. No service or breakable charge is payable.

d. The physician's statement as to the cost to him of drugs parenterally administered, for which reimbursement is requested, may be accepted by Fiscal Administrators without question unless, during the review of the claim involved, it appears the charge indicated thereon is not in conformity with other charges for similar drugs. It is recognized that errors may be made in billings for drugs. (For example, there may be a typographical error in recording the amount of charges.) Where the amount charged appears for any reason to be in error, discrepancies will be resolved prior to the payment of such claims. Fiscal Administrators should communicate with their State Medicare Committee or with the Office for Dependents' Medical Care, as appropriate, in unresolved or disputed cases or on matters not covered by this letter.

e. Claims received on or after 1 July 1958 for drug items furnished prior thereto may be paid in accordance with the policy in effect on that date.

f. The policy authorizing the furnishing of drugs to hospital inpatients remains unchanged.

g. The policy to the effect that an additional amount is not payable to a physician or surgeon who furnishes his own anesthetic equipment or materials will continue in effect.

h. Medicare patients may continue to obtain medication from pharmacies of uniformed services medical facilities upon prescription of a civilian physician if the items prescribed are available there or they may obtain such medication from civilian pharmacies at their own expense.

4. *Implementation of New Policy by Office for Dependents' Medical Care.*

It is realized that the above policy may be at variance with the provisions contained in those contracts that have been renewed since 1 February 1958. Appropriate contract supplemental agreements designed to put the above policy into effect on 1 July 1958 will be mailed out in the very near future. This letter is designed to give as much advance notice of the change in policy as is practicable and to alert contractors to the fact that contract supplemental agreements are being prepared.

5. It is requested that each Fiscal Administrator notify all physicians in the area covered by his contract of this change in policy prior to 1 July 1958.

PAUL L. ROBINSON
Major General, MC
Executive Director
Office for Dependents' Medical Care

THROUGH . . . *the Microscope*

Control of Infections in Hospitals

Measures to aid in reducing the current worldwide problem of infections in hospitals caused by antibiotic-resistant staphylococci have been recommended by the American Hospital Association.

The recommendations were included in a bulletin on "Prevention and Control of Staphylococcus Infections in Hospitals" mailed by the Association to the more than 7,000 hospitals in the United States and Canada. The bulletin was adopted by the Association's Board of Trustees at a May 13 meeting in Chicago.

"Information is inadequate as to the incidence of staphylococcus infections which are acquired in hospitals, but there is evidence that the number of such infections is increasing," the bulletin said.

"Infections with antibiotic-resistant staphylococci constitute the main difficulty. Hospitals are clearly the reservoir of most antibiotic-resistant strains," according to the bulletin. "One of the major factors in the current situation is the widespread use of antibiotics which eliminates susceptible strains of staphylococcus and leaves uncontrolled the resistant strains."

Examples of staphylococcus infections given in the bulletin included skin infections in newborn infants and children, in newly delivered mothers, in burns, in incisions made during surgery and in pneumonia in debilitated patients.

The bulletin recommended that "all hospitals should establish committees on infections to devote particular attention to infections which are acquired in hospitals so they may be reduced to the lowest possible minimum," and suggested that "the local health officer should be urged to serve as a consultant to the committee."

Recommended functions of the committee on infections should include:

1. Establishment of a system of reporting infections among patients and personnel.
2. Keeping of records of infections.
3. Distinguishing as far as possible between infections acquired in the hospital and infections acquired elsewhere.
4. Reviewing the hospital's bacteriological service to insure its quality and accessibility.
5. Reviewing aseptic techniques used in operating rooms, delivery rooms and nurseries, and if necessary, recommending methods of improving these techniques.
6. Reducing "to the minimum consistent with adequate patient care" the "use of antibiotics, especially as 'prophylaxis' in clean elective surgery," and treatment with adrenocortical steroids.
7. Undertaking an educational program to convince medical staff and hospital employees of the importance of reporting skin infections, boils and upper respiratory infections.
8. Establishing follow-up techniques to find sources of infections and to locate infections acquired in the hospital which do not appear until after discharge.

Doctor Gunnar Gundersen — New A.M.A. President

In taking the oath of office as 112th president of the American Medical Association June 24 in San Francisco, Doctor Gunnar Gundersen called attention to the physician's obligations on the international scene. The sixty-one-year-old La Crosse, Wisconsin, surgeon said: "As both physicians and citizens, we must see that medicine plays its full role, not only in promoting better world health, but also in helping the search for brotherhood and peace."

Doctor Gundersen has been active in state and national medical affairs throughout his practice. He was president of the State Medical Society of Wisconsin in 1941-42, served on a number of the society's committees, and was speaker of its House of Delegates for about five years. He was a member of the A.M.A.'s House of Delegates in 1937-38 and was elected to the A.M.A. Board of Trustees in 1948. He became chairman of the Board in June, 1955. His keen interest in hospital affairs and the quality of hospital service led to his election as the

first chairman of the Joint Commission on Accreditation of Hospitals when it was formed in 1951. He served in that capacity until 1953.

He now operates the Gundersen Clinic in La Crosse, along with three of his physician brothers, Sigurd B., Alf H., and Thorolf E. Two other physician brothers, Drs. Trygve and Sven M. Gundersen, are practicing in Boston and Hanover, New Hampshire, respectively. The Gundersen Clinic, which handles 3,000 to 4,000 new patients a year, was established in 1927. It attracts people from all over the United States and is operated in conjunction with the La Crosse Lutheran Hospital next door.

Doctor Gundersen did his prep school work in Oslo, Norway, and returned to the U.S. to obtain his B.S. degree from the University of Wisconsin in 1917, and his M.D. from Columbia University in 1920. He served his internship and residency at La Crosse Lutheran Hospital from 1920 to 1922. He is a diplomate of the American Board of Surgery, a fellow of the American College of Surgeons and the International College of Surgeons, a member of the Council of the World Medical Association, and a member of the American Public Health Association.

Voluntary Health Insurance Study Under Way

Health Information Foundation has announced that it will finance a $36,000, eighteen-month study of "experience rating" in voluntary health insurance—the setting of charges or premiums according to varying use of services by different groups.

The study will be conducted by Associate Professor Duncan M. MacIntyre, as principal investigator, and Professor John W. McConnell, as associate investigator, both of the State School of Industrial and Labor Relations at Cornell University. Doctor McConnell is dean of the Graduate School at Cornell.

The grant for the study was approved and a contract signed at a recent meeting of the Foundation's Executive Committee which represents the 200 drug, pharmaceutical, chemical and allied companies that sponsor HIF.

The study will investigate advantages and disadvantages of fixed "community-wide" rates and "experience" rates based on the use of insured services. Under community rates, the Foundation explained, subscriber groups pay essentially the same premiums for the same benefits. There are usually no rate adjustments to groups for variations in their claim or loss ratios. Experience rates, on the other hand, are adjusted in terms of sex and age ratios and use of services; rates are lower for policyholder groups whose claims have been low.

continued on next page

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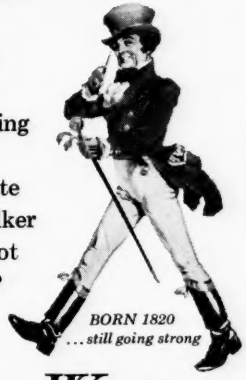

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Average Citizen Sees the Doctor Five Times a Year

"John Doe"—the average citizen—sees his doctor about five times during the year, reports the Health Insurance Institute, citing a report issued from the National Health Survey.

Authorized by Congress in 1956, the National Health Survey Program is a continuing study of the health care needs of the American people by the U.S. Public Health Service. It is expected that this study will form the most comprehensive body of information on the state of the nation's health in existence.

Most patients visit the doctor's office, the Institute reported, while home calls by the doctor accounted for less than 10% of the visits.

Some of the early statistics available from the Public Health Survey, which covered the months of July through September 1957, showed that city residents consult a physician more often than those living on farms or in rural areas. People on farms see a doctor at a rate of 3.6 visits per person per year, as compared with 4.5 for the rural non-farm population. In the cities, the rate of doctor visits per person per year was found to be 5.1.

Not all physicians' calls involve treatment, the Institute stated. The Survey figures revealed that two thirds of all doctor visits call for diagnosis and treatment, with the remainder involving preventive care or other such services. While this percentage distribution applies throughout the United States, explained the Institute, visits for general check-ups are somewhat less frequent among the rural farm population. In August 1957, 18% of all the people in the country saw a doctor. This is the time of year, the Institute pointed out, when the rendering of medical services is probably at a seasonal low, due to fewer cases of common cold, bronchitis, pneumonia, and other respiratory infections.

The generally held belief that more females than males see a doctor was confirmed, continued the Institute report. National Health Survey data showed that physician visits by females amounted to 5.5 per person per year as against 3.9 among males. For both sexes, the number of calls increased with age, with the exception of children under 5 years of age, where frequency of visits was relatively high. Persons at ages 5 through 14 had 3.4 visits per person per year, whereas those over age 65 averaged 6.8 visits per year.

By type of services, the 4.8 visits by the average person per year is broken down as follows:

Type of Service	*Number of Visits*
Diagnosis and Treatment	3.3
General Check-up	0.5
Immunization	0.4

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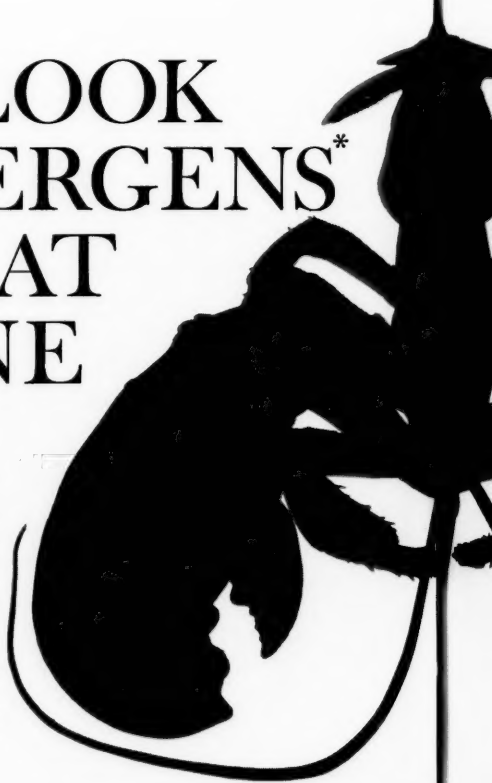

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*Sea food—source of highly potent allergens. Typical are: lobster; tuna; sturgeon roe; fish oil used to prepare leather, chamois, soaps; cuttlefish bone for polishing material and tooth powder; glues made from fish products.

Pre-natal and post-natal care	0.2
All other	0.5

Is Anybody Watching?

In the field of television, one of the most difficult jobs is determining audience interest. The Health Information Foundation recently conducted a study to find out how people learn about the use of medical care and their attitudes towards it. One question in the nationwide survey asked: "How about radio and television programs dealing with health or medicine. Do you listen to those frequently, only occasionally or hardly ever?"

Of the 2,374 surveyed, 19% listened frequently; 35% occasionally and 46% were in the hardly ever category. According to the data, women are much more interested in health and medical programs than men (23% of the women, compared with 15% of the men, listened frequently).

ANESTHESIOLOGISTS ELECT

The Rhode Island Society of Anesthesiologists has elected the following officers:

WILLIAM MCDONNELL, M.D., *President*
GEORGE DWYER, M.D., *Vice President*
WILLIAM HOWRIE, M.D., *Secretary-Treasurer*

THE ATOM – ITS ULTIMATE PURPOSE

concluded from page 374

sure He did not intend the atom to annihilate the civilization He has permitted man to achieve.

It is altogether fitting, I believe, that we shall be thus serious in this atmosphere among men of medicine who know something, themselves, of the mystery of life.

We shall have courage and confidence. We shall have hope. We shall have optimism. We know that all power God shares with man is power for good.

We know that the power and the promise of the atom is — *peace.*

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Robins

1. Thomas, J. W.: Ann. Allergy 16:128, 1958

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BOARD OF TRUSTEES OF THE LIBRARY

THE PAST YEAR has witnessed many improvements to the Medical Library building that have added to the usefulness of the building, and that have made the working conditions of the Society's employees much more pleasant.

The major improvements are noted as follows:

1. A partition has been erected to separate the balcony on the second floor from the auditorium, thus eliminating to a great extent outside noise while a scientific session is in progress. The storage space on the balcony has been reorganized to make it more efficient.

2. New office equipment has been purchased for the secretaries' office on the second floor, and the room has been painted, the floor tiled, and storm windows installed. The second office room on this floor has been assigned for the storage of the equipment essential to the work of the secretaries. Old equipment has been replaced and new equipment added, and work tables have been installed.

3. On the first floor the Miller Room has been converted into an office for the executive secretary, and it is also used as a conference room for various committee meetings. New equipment has been secured for this room, the floor tiled, and the room painted.

4. The coat room and lower hall have been tiled, thus giving a new floor covering for the entire first floor area. New reading tables and lamps have been purchased for the main reading room, and the large chairs have been refinished and re-covered.

5. The iron book stacks from the Miller Room have been transferred to the basement book storage room where they have been put to good use. New lights have been installed in this storage room. The lower hall has been tiled to match the floor covering of the first floor and the basement dining room.

6. Through the financial assistance of the Medical Bureau of the Providence Medical Association the kitchen has been completely refinished, and in addition a lavette has been installed for the convenience particularly of the Bureau operators who are on 24-hour duty in the building. Storm windows have been installed for the basement room and the Bureau office, and an air conditioner installed in the Bureau office.

7. New wood bookcases have been built and placed in the basement room to house the Davenport Collection previously stored in the Miller Room on the first floor. Drapes have been provided for the windows, and this Conference Room is now used frequently for meetings of committees of the Society. Since it houses the Davenport Collection the Trustees recommend that it be identified hereafter as the *Davenport Conference Room.*

8. The limited parking area in back of the building has been tar-surfaced, and a retaining wall built to hold the adjoining bank. A steel fence has been erected about the property, and this Spring the grounds will be landscaped.

9. A new steel flagpole has replaced the old wood one that was damaged and because of its weight a public liability in view of the heavy winter winds in the open area of Francis Street.

10. Three automatic fire stops have been purchased and suspended in the boiler room as a fire protection measure.

* * *

In the opinion of the trustees the Medical Library building is an asset that is not fully appreciated by all the members. The appraisal by the insurance company a year ago placed the replacement value of the building at $270,000 exclusive of contents or land.

The members of the Society are fortunate to have such a fine library and headquarters building, and the improvements that have been made in recent years should encourage additional improvements each year to make the building more useful and to keep it in the best physical condition in order to avoid costly outlays for repairs.

The trustees are appreciative to the Medical Bureau for its help in improvement of the basement section of the building, and to the Society for its appropriations that made possible the extensive improvements in 1957-58.

STANLEY SPRAGUE, M.D., *Chairman*

CHECK THE DATE

Wednesday, October 8, 1958

INTERIM MEETING AT NEWPORT

MY DAD— HE HURT HIS BACK REAL BAD

"It happened at work while he was putting oil in something"

"He told Mom his shoulder felt like it was on fire"

"He couldn't swing a bat without hurting"

"But Doctor gave him some nice pills--and the pain went away fast"

"Dad said we'd play ball again tomorrow when he comes home"

AND THE PAIN WENT AWAY FAST

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ACTS FASTER...
usually within 5-15 minutes

LASTS LONGER...
usually for 6 hours or more

MORE THOROUGH RELIEF...
permits uninterrupted sleep through the night

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excellent for chronic or bedridden patients

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New "demi" strength permits dosage flexibility to meet each patient's specific needs. PERCODAN-DEMI provides the PERCODAN formula with one-half the amount of salts of dihydrohydroxycodeinone and homatropine.

AVERAGE ADULT DOSE: 1 tablet every 6 hours. May be habit-forming. Available through all pharmacies.

Each PERCODAN* Tablet contains 4.50 mg. dihydrohydroxycodeinone hydrochloride, 0.38 mg. dihydrohydroxycodeinone terephthalate, 0.38 mg. homatropine terephthalate, 224 mg. acetylsalicylic acid, 160 mg. phenacetin, and 32 mg. caffeine.

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BOOK REVIEWS

GENERAL PATHOLOGY. Based on Lectures Delivered at the Sir William Dunn School of Pathology, University of Oxford. Edited by Sir Howard Florey. 2nd ed. W. B. Saunders Company, 1958. $16.00

To the thirty-seven lectures delivered at the Sir William Dunn School of Pathology at Oxford University, which comprised the first edition of this book, have been added several other chapters, such as on thrombosis, arteriosclerosis, and tumors, to achieve a more complete text on general pathology. There are fifteen contributors, many of whom have performed original research work in their respective subjects. The book intends to acquaint the better student with the scope of general pathology and the fundamental changes which take place in response to injury. Considerable space is devoted to methods of investigation, both old and new, and to experimental pathology. The language is clear and concise. There is much historical information. The illustrations have been improved and are generally good. Each chapter has an up-to-date list of references, which is a valuable feature.

This book may be recommended to the medical student, to the board-eligible pathologist, and to all who teach pathology, as a useful addition to the conventional textbooks of pathology.

GEORGE F. MEISSNER, M.D.

PRINCIPLES AND METHODS OF PHYSICAL DIAGNOSIS by Simon S. Leopold, M.D. W. B. Saunders Company, 1957

This is a very valuable book, not only for students and younger medical graduates seeking to perfect their routine techniques in examining patients but also for the seasoned practitioner. The latter will find help, which is often needed, in filling the gaps in his habitual methods and making his study of patients as carefully detailed as it should be. In the preface to the second edition the author calls attention to the great lack of competence in the matter of history taking and physical examination on the part of many well-trained young internists whose theoretical knowledge of general medicine is excellent. This situation is doubtless due to the great amount of time which, at the present time, must needs be spent on the study of pathologic physiology and biochemistry, with a resulting relative neglect of the methods of direct approach to the patient and his problems.

The book gives a clear and sufficiently concise description of every phase of the subject. The chapters on *History, Psychiatric Survey* and *Neurological Examination* can be particularly recommended as valuable and presented clearly, practically and without confusing and relatively irrelevant details. By this it is not meant to infer that the other sections of the book are not of equal excellence, but simply that these three chapters, in the opinion of this reviewer, are particularly valuable, because these subjects are often less effectively presented in other books of this nature.

While, of course, the experienced clinician will find certain procedures or tests presented in a manner that may differ somewhat from that which he habitually employs, or he may note that one or two of the favorite tricks which he has learned are not mentioned, he will also find definite sound and clear descriptions of standard methods and will, perhaps, do well to review some of his own techniques to see if he can improve them. Only in rare instances does one encounter in this excellent book descriptions of techniques of examination that are not clear and easily understood on the first reading. As a whole, the book should be welcomed as a reliable guide for the student who wishes to develop, and the practitioner who wishes to improve his direct approach to his patients.

ALEX. M. BURGESS, M.D.

ALLERGY IN PEDIATRIC PRACTICE by William B. Sherman, M.D., and Walter R. Kessler, M.D., Ph.D. C. V. Mosby Company, St.

concluded on page 400

THE ELDERLY

Socrates: **"To tell you the truth, Cephalus, I am very fond of conversation with elderly folk. They have gone before us on the road over which perhaps we also shall have to travel and I think we ought to try to learn from them what the road is like — whether rough and difficult or smooth and easy. And now that you have arrived at that period of life which poets call 'the threshold of age,' there is no-one whose opinion I would more gladly ask."**

PLATO: ***The Republic.*** **Book I.**

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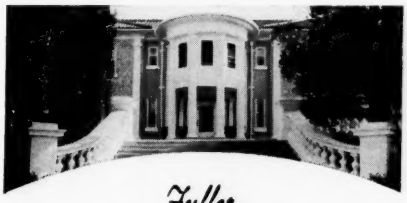

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BOOK REVIEWS

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Louis, 1957. $9.25

The publishing of this book is an important event. Far too little thought has heretofore been given to the allergic diseases in infancy and childhood.

Sherman and Kessler discuss the immunology or underlying mechanisms of the allergic reactions briefly but clearly and effectively. The scientific accuracy and reliability of the text is excellent. There is a fine sense of proportion; for instance, bronchial asthma is given 30 pages, allergic rhinitis, 15 pages, and insect bites and stings, 2 pages.

Other subjects covered are nonimmunologic factors, drugs used in treatment, anaphylaxis, serum sickness and serum reactions, the atopic diseases, diagnosis of the causative allergins, infection treatment, atopic dermatitis, urticaria and angioedema, gastrointestinal allergy, allergy of the eye, allergy of the central nervous system, contact dermatitis, delayed allergy to infective agents, allergic purpura, drug allergy, physical allergy, collagen diseases, general care of the allergic child and an appendix with lists and directions.

Many pediatricians would not agree with the routine use of the intracutaneous test alone in children or with the frequent use of indirect testing in babies. There is the question of safety which is most important and also the question of unduly frightening the child. In some situations the time and expense involved may be serious, and the elaboration of testing may delay or prevent its use.

Not only in connection with the testing but in other ways one is conscious that the book is geared to the school child, and the preschool child and infant who present the more important problems to the pediatrician receive much less attention.

Except for the reservations just stated the book appears to be as near perfect as could be written today. It is a delight to read and is concise enough to be convenient for frequent reference.

WILLIAM P. BUFFUM, M.D.

THE CHRONICALLY ILL by Joseph Fox, Philosophical Library, Inc., N.Y., 1957. $3.95

This book can be summarized briefly thus: There are millions of people in this country who suffer from chronic illness of one kind or another. They are great burdens to themselves, their families and the community and more should be done in the way of prevention, proper care and rehabilitation.

The author goes very carefully into all aspects of the matter, placing special emphasis on the type of care given by the Montefiore Hospital, which provides hospital-type care for patients in their own homes with admission to the hospital itself when necessary.

This book will be of more value to workers in the public health field, administrators of health groups and hospitals rather than to the practicing physician.

AMY E. RUSSELL, M.D.

MEGIMIDE AND DAPTAZOLE IN TREATMENT OF BARBITURATE POISONING

concluded from page 386

[11]Hurdle, A. D. F.; and Lane, B. K.: Phenobarbitone poisoning treated with Bemegride, Lancet 1:836, 1956

[12]Louw, A.; and Sonne, L. M.: Megimide in the treatment of barbituric-acid poisoning, Lancet 2:961, 1956

[13]Pedersen, J.: Arousing effect of Megimide and Amiphenazole in allypropymal poisoning, Lancet 2:965, 1956

[14]Clemmesen, C.: Effect of Megimide and Amiphenazole on respiratory paresis, Lancet 2:966, 1956

[15]Kjaer-Larsen, J.: Delirious psychosis and convulsions due to Megimide, Lancet 2:967, 1956

[16]Plum, F.; and Swanson, A. G.: Barbiturate poisoning treated by physiological methods. With observations on effects of beta, beta — methylethylglutarimide and electrical stimulation, J.A.M.A. 163:827, 1957

[17]Boyan, C. P.; Howland, W. S.; and Bellville, J. W.: Beta, beta — methylethylglutarimide (Megimide) in treatment of barbiturate intoxication. Report of a case. J.A.M.A. 163:835, 1957

[18]Reed, C. E.; Driggs, M. F.; and Foote, C. C.: Acute barbiturate intoxication: a study of 300 cases based on a physiologic system of classification of the severity of the intoxication, Ann. Int. Med. 37:290, 1952

[19]Waddell, W. J.; and Butler, T. C.: The distribution and excretion of phenobarbital, J. Clin. Invest. 36:1217, 1957

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